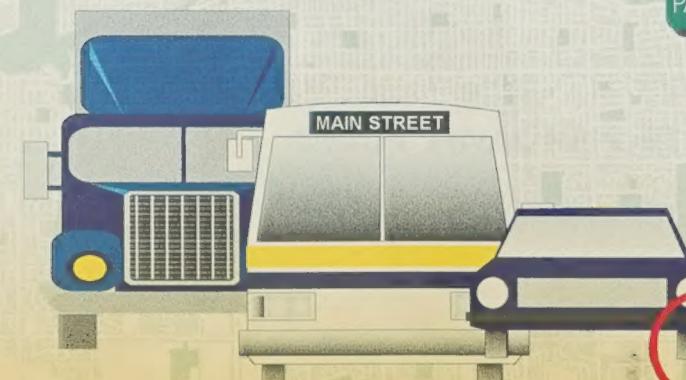




Regional Municipality of Hamilton-Wentworth

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Regional Transportation Review Draft Final Report

May 1995

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1 RECOMMENDED PLAN

This section of the report provides an overview of the recommended transportation facilities and services as well as the supporting actions required to address anticipated Regional transportation needs.

1.1 PROVINCIAL TRANSPORTATION PLANS

In April, 1995 the Provincial Ministry of Transportation (M.T.O.) released a report entitled "Transfocus 2021: A Strategic Transportation Plan for the Niagara - Lake Erie Area". This report outlined a recommended Provincial transportation plan for an area which includes Hamilton-Wentworth Region. The plan outlines a program of new and improved Provincial highways and GO Transit services to be implemented over the next 25 years. This plan, which is outlined in Section 5, has been reflected directly in the development of the Region's transportation plan.

1.2 ROAD NETWORK PLAN

Major New Regional Roadways

The following major Regional Roadways are recommended for implementation over the next 25 years:

- East-West and North-South components of the Red Hill Creek Expressway connecting to Highway 403 and Q.E.W.
- Initial stage of Hamilton Perimeter Road from Sherman Avenue to Bay Street. Extensions west of Bay Street as longer term phases would be dependent on funding availability and need.

Central Area Roadways

The current Central Area roadways should be modified through minor geometric modifications and traffic operational measures to provide:

- Downtown Circulation and Access Loop, generally consisting of:
 - Wellington Street and Victoria Avenue.
 - Cannon Street and Wilson Street.
 - Bay Street and Queen Street.
 - Charlton Avenue and Herkimer Street.

- Two way traffic on Bay Street between King Street and Hamilton Perimeter Road.
- Modifications to King Street and Main Street, John Street and James Street within the Downtown to provide greater priority for pedestrian space and public transit services, with reduced provisions for through vehicular traffic.
- Conversion of Hunter Street to two-way traffic operation between Wellington Street and Queen Street with bicycle lanes along this street.

Central Escarpment Crossings

The recommended plan for roadways crossing the central escarpment consists of:

- Utilizing the Claremont Access as the major vehicular traffic route across the central escarpment, thereby routing traffic around the Central Area. This would include widening of Upper James Street between Inverness Avenue and Fennell Avenue.
- Utilizing the Jolley Cut and James Mountain Road as primary transit access routes between Hamilton Mountain and the Central Area. Jolley Cut would also be utilized to provide a bicycle route across the central escarpment.
- Maintaining Beckett Drive, Sherman Access, and Kenilworth Access as important vehicular access routes across the escarpment. Minor geometric improvements and traffic operational measures should be considered where appropriate to ensure safety and efficiency.

McMaster University Access

The Region and McMaster University should jointly investigate and undertake improvements to campus access which would potentially include:

- All-directional vehicular and transit access to the campus from Main St. West with reduced utilization of Sterling Street access.
- Reduced all day parking supply on the main campus area.
- Improvements to internal vehicular circulation routes in the main campus areas.
- Provision of a major transit terminal within the campus area.

Stoney Creek Escarpment Crossing

A new escarpment crossing for Fruitland Road is not required within the time frame of this plan. For network continuity and truck access, the Fifty Road escarpment crossing should be maintained as a Regional Road and upgraded to Regional Standards.

Development Related Roads

Exhibit 1.1 illustrates the road improvements that will be required to accommodate planned new urban development within the time frame of this plan.

Neighbourhood Traffic Calming

Implementation of Neighbourhood Traffic Calming projects should be considered in older areas of the urban area where through traffic on local streets is creating concerns.

Guiding principles for Traffic Calming Projects should be to accommodate the through transportation needs on arterial roads and to give priority to addressing neighbourhood concerns on local streets. These projects would be primarily the responsibility of the City of Hamilton but should be coordinated with the Regional Transportation Plan. Some of the candidate areas for this type of treatment are the Durand, Beasley, Kirkendale North, Corktown, Stinson, Central, Lansdale and North End. All of these traffic calming projects will require close co-operation and intense consultation with local groups.

Regional Roadway Jurisdiction

The Region in consultation with the Area Municipalities and Provincial Ministry of Transportation should undertake to rationalize the current network of Regional Roads.

The guiding principle for the rationalization would be based on the Region retaining jurisdiction over only those roadways required to accommodate Regional transportation requirements.

Rationalized network would include:

- Roads connecting major urban areas and outlying communities.
- Roads providing an arterial network of continuous, higher standard routes (eg. Red Hill Creek Expressway).
- Roads providing continuity with Provincial highway corridors and neighbouring Regions.
- Other roads of major Regional significance (eg. central escarpment crossings, bus rapid transit routes).

The rationalized network would result in a reduction of the existing Regional Road network from about 590 km to about 350 km. The general extent of the rationalized network is illustrated in Table 1.1.

1.3 PUBLIC TRANSIT PLAN

Bus Rapid Transit Service

TABLE 1.1

RATIONALIZED REGIONAL ROAD NETWORK

MUNICIPALITY	EXISTING (km)	RATIONALIZED (km)
Hamilton	231	167
Ancaster	71	36
Dundas	21	15
Stoney Creek	63	49
Flamborough	144	44
Glanbrook	61	26
New	N/A	15
Total	591	352

Bus rapid transit (Express bus service) is the major component of an improved public transit system. Its characteristics are:

- Express bus service operating on arterial roadways.
- Improved passenger terminals for greater convenience, security and accessibility.
- Transit priority measures to ensure speed and reliability.

Three major bus rapid transit routes will be:

- McMaster - Downtown - Eastgate Corridor.
- Downtown - Limeridge - East Mountain Corridor.
- Downtown - Mohawk College - West Mountain Corridor.

Other Bus Service Improvements

Bus services will be improved through expanded feeder routes, increased frequency, better hours of service in all outlying areas.

Existing routes will be restructured in specific areas to improve efficiency.



Passenger Terminals

Major new passenger terminals will be developed at McMaster, Eastgate, Limeridge and Downtown Hamilton, which provide increased convenience, security, and accessibility.

Other new or improved minor passenger terminal facilities will be developed at Mohawk College, Ancaster, Heritage Green, Waterdown, Bayfront area.

GO Transit Integration

HSR services, fares and public information will be integrated with GO Transit and other Intercity services.

Transit Accessibility

To improve transit accessibility it is recommended that the current Regional strategy be continued, which is directed towards:

- Developing a range of specialized services for persons with disabilities.
- Making HSR services fully accessible.
- Regional coordination of services contracted to private sector.
- Facilitating customer input to service provision.

Transit and Land Use Planning Coordination

The development approval process should require specific pedestrian / transit considerations in new developments prior to approval. Examples are presented in the Transportation Association of Canada publications.

New subdivision planning should reflect the latest developments in transit / pedestrian sensitive design to improve transit's ability to provide good service levels economically.

Zoning and development incentives should be considered along high frequency transit routes and at major transit nodes (terminals) to increase employment and population densities along these routes, and cycle / pedestrian access to transit nodes along the routes.

Parking requirements in the Central Area should capitalize on the availability of high transit service levels to minimize the amount of all day commuter parking.

Site design for suburban employment and commercial facilities should ensure convenient transit, bicycle, and pedestrian access.

The designated urban boundary should be relatively fixed to promote infilling and increased densities as opposed to continued, low density suburban sprawl.

Transit Funding and Governance

The Region should assume direct responsibility for the Transit Service levels throughout the urban area of Region (Urban Transit Service Area).

Public transit costs should be shared equitably across the Urban Transit Service Area among all municipalities.

The Region and Area Municipalities should undertake to develop a phased implementation plan for service improvements and cost sharing.

1.4 BICYCLES

The current Regional Bicycle Program should be continued in coordination with bikeway improvements in each Area Municipality. The program should receive sufficient funds to:

- Implement an integrated network of on-street and off-street bikeways for utilitarian and recreational cycling.
- Install bicycle racks and storage facilities at major activity areas.
- Promote public awareness through distribution of maps and safety materials.
- Provide cycling skill courses.

Other everyday actions which would contribute to an efficient Bicycle Program would include:

- Incorporate bicycle facilities into ongoing roadway planning program.
- Transit planning (racks).
- Terminal planning (storage).

To develop a full network of bicycle routes which will support Regional cycling objectives, several important components need to be developed:

- Bicycle routes which provide circulation around and access into the Downtown area.
- Bicycle route between McMaster University and the Downtown area.
- Bicycle route between the Central Mountain and the Downtown area.

The recommended strategy for Downtown bicycle circulation is to utilize Locke Street and Ferguson Avenue as designated bicycle routes from the Escarpment to the Harbour area. A number of local streets will provide east-west on-street cycling routes between Locke Street and

Ferguson Avenue. The major route through the Downtown area would be on Hunter Street, with designated bicycle lanes in each direction.

The recommended plan for the McMaster University - Downtown corridor is development of several routes, with some routes oriented towards recreational or less skilled cyclists and other routes oriented towards experienced commuter cyclists. These routes can be developed incrementally and would generally include:

- Main Street West / Hunter Street / Canada Street
- Longwood Road / Chatham Street Extension
- Longwood Road / Aberdeen Avenue
- Baxter Street / Aberdeen Avenue

The Central Escarpment crossing strategy is designed to provide a link between Ferguson Avenue and Concession Street. The recommended route is the Jolley Cut, utilizing stairs and a bike path along the Jolley Cut. This will require lane modifications or new structural facilities.

1.5 PEDESTRIANS

The improvement of the pedestrian environment is required to support the Official Plan and the VISION 2020 goals. Actions that will enhance pedestrian mobility are:

- Give higher priority to the provision of sidewalks / walkways in new development and road construction projects.
- Review and redevelop existing standards for design and maintenance of sidewalks / walkways.
- Improve amenities such as lighting, benches, other street fixtures.
- Improve safety by requiring buffers between pedestrians and adjacent traffic where possible.
- Adopt local use design guidelines which provide for improved pedestrian access to neighbourhood facilities, activity centres, and bus stops.
- Develop a comprehensive pedestrian plan for the Central Area, which would incorporate:
 - Hughson Street pedestrian facility.
 - Walkway guides for visitors.
 - Design / locate Central Area bus shelters so they can provide shelter for other pedestrians.
 - Enhance the attractiveness of the Downtown Area pedestrian environment.

- The implementation of sidewalks is primarily a Municipal rather than a Regional responsibility. Therefore, co-ordination between the Region and the Area Municipalities is important for the provision of improved pedestrian facilities.

1.6 PARKING

Parking Policy and Actions

Surplus parking spaces, low priced all day parking, and high short term rates encourage increased peak hour commuter traffic to and from the Central Area. Parking policies can be an effective tool to assist in traffic management and transit promotion. Actions that will enable parking to play a major role in the transportation plan are:

- Review "cash-in-lieu" exemption policy to help Parking Authority to raise funds required for strategic parking facilities.
- Allocate Central Area street space to favour transit and moving people and goods as opposed to parking vehicles during peak traffic periods.
- Promote a high quality of parking lot design and construction.
- Promote employer parking management programs in suburban areas to promote transit and carpools, hence reducing single occupant vehicle (SOV) use.
- Revise the role / mandate of the City of Hamilton Parking Authority to encourage them to influence long term parking pricing.
- Control overall supply of parking through land use and zoning controls. (City's responsibility / jurisdiction)
- Initiate City and Regional employee programs to favour transit and carpooling and not free parking.
- Provide adequate safe bicycle storage on strategically located Municipal parking lots.

2 BACKGROUND

2.1 REGION'S VISION OF SUSTAINABLE DEVELOPMENT

VISION 2020 - Chairman's Task Force On Sustainable Development

VISION 2020 was a three year study to develop a new vision of the Region, based on principles of sustainable development. It featured a consultative process involving over 1,000 citizens. The resulting plan identified strategic new directions for:

- Natural environment
- Urban land use
- Transportation
- Economy

The transportation vision emphasizes:

- Reduced dependence on automobiles
- Increased public transit role
- Greater opportunities for pedestrians, cyclists
- Reduced impact on neighbourhoods, environment.

VISION 2020 Goals for Transportation System

To develop a transportation system which:

- Has reduced impacts on natural and community environment.
- Meets community travel needs.
- Provides mobility for disabled persons.
- Provides for safe movement of public.
- Considers safety and security in public areas.
- Provides access to all areas of Region.
- Ensures effective integration of different travel modes.

To encourage the travelling public to shift to more sustainable forms of transportation.

VISION 2020 Transportation Strategies

Leadership by example.

Reduce the number of single occupancy private vehicles making daily work trips.

Reduce the level of vehicular emissions.

Develop safe bicycle routes for utilitarian and recreational cyclists of various skill levels.

Design and construct facilities to meet the needs of sustainable modes of transportation.

Develop a sidewalk / walkway system that provides for accessible, safe, convenient, and enjoyable pedestrian movement and meets the needs of all citizens.

Encourage the use of public transit as an alternative to the private auto.

Provide sufficient funding for public transit to ensure a high level of convenient and attractive service.

Provide transportation services for disabled people that is equivalent to regular transportation services.

Inform citizens of opportunities and benefits of alternative modes of transportation.

Some Considerations Regarding VISION 2020 Goals

All travel growth cannot be accommodated on transit because:

- It would require 4.5 times growth in per capita ridership.
- This translates into 225 annual transit rides per capita (50 now).

Comparison statistics for other cities:

• Metro Toronto	186 annual transit rides per capita
• Ottawa/Carleton	133 annual transit rides per capita
• London	54 annual transit rides per capita

Limited public funds require setting priorities and making some tradeoffs. There is not enough money to pursue all objectives at once.

VISION 2020 goals will require better management of transportation demands. Changes to travel patterns and behaviour will be met with resistance unless they are well planned and introduced carefully.

Necessary supportive measures must be implemented simultaneously:

- policy changes
- parking restrictions
- urban design changes
- funding re-allocation

Changes must be started now to minimize future problems.

- There are opportunities to make choices that will enhance the future (gradual attitudinal changes).
- These changes are not radical, but prudent and responsible.
- Failure to act now will result in future problems and drastic measures may then be required, but may not be possible.

2.2 REGIONAL OFFICIAL PLAN

The Regional Official Plan was adopted by Regional Council on June 7, 1994. The Official Plan provides a framework to guide change and growth within Hamilton-Wentworth to the year 2020.

The Official Plan consists of:

- Part A - Introduction to the concept of a Sustainable Region.
- Part B - Policies which endeavour to enhance quality of life for Region's citizens.
- Part C - More specific land use policies including transportation and infrastructure policies.
- Part D - Key mechanisms for implementation of the plan.

The Official Plan provides specific policies for the protection of natural resources including Environmentally Significant Areas (ESA) and the Niagara Escarpment.

2.2.1 LAND USE DEVELOPMENT STRATEGY

Regional Development Pattern is based on:

- Accommodating Regional Population of 566,500 persons by year 2020.
- Developing the Region in designated Urban and Rural Areas.

Land Use strategy for Urban Area consists of:

- Compact mixed use areas.
- Firm Urban Area boundary.
- Evolving role of business parks as major economic generators.
- Diversification of the traditional manufacturing area.
- Growth in service industry sector.

The proposed development pattern map from the Regional Official Plan is shown in Map 1 of the Regional Official Plan.

2.2.2 TRANSPORTATION SYSTEM

Objectives and Specific Policies

Road network will remain an essential element of integrated transportation system. Specific policies include:

- The Regional Official Plan map of the Transportation system, including proposed Provincial Highways and Regional Roads, is shown in the Official Plan Map 6.
- Designation of Red Hill Creek Expressway as a Regional Road from Highway 403 to Q.E.W..
- Identification of Highway 5 Bypass Corridor around Waterdown.
- Requirements to determine need for Fruitland Road Mountain Access Corridor.

Public Transit system should be affordable, efficient, convenient and accessible. It should provide a level of service sufficient to attract people throughout the urbanized area, especially for trips to Downtown Hamilton. Specific policies include:

- Public transit service levels should be able to enhance the use of transit as a viable alternative to the automobile.
- Investigate expansion of Urban Transit Area to the entire urban area.
- Regional Centre (Downtown Hamilton) is a primary focus point of transit service.
- Plan the public transit system to generate a ridership level of 100 trips per capita per year in 2021.
- Investigate bus priority measures where conditions warrant.
- Consider public transit requirements in planning all new development.

Bicycling as a form of transportation should be encouraged due to health benefits, financial benefits and reduced environmental impacts. Specific policies to enhance bicycle use include:

- Implementation of Regional Bicycle Plan.
- Provision for bicycles in development plans, roadway facilities, public transit and parking / storage (zoning by-laws).

Pedestrian movement should be encouraged and facilitated through land use patterns and street design.

Region shall prepare an overall twenty-year strategy for transportation and this shall include a ten-year transportation systems and needs plan.

Transportation Implications of VISION 2020 and Official Plan

These documents require public and political commitment to a process of change.

These documents require strong support (political, community, business and financial) for a transportation system that:

- Enhances role and quality of public transit as a Regional system.
- Encourages pedestrian and cycling as alternative modes.
- Discourages single occupant vehicle use, especially in peak periods on congested corridors.
- Promotes land use arrangements that facilitate efficient and effective public transport.
- Promotes a parking policy that discourages long-term parking by single occupant vehicles and insures an adequate supply of short-term parking.
- Provides for efficient movement of motor vehicles, buses and bicycles on well designed and managed Regional roads, leaving local and collector facilities to accommodate local access requirements.
- Enhances Central Area viability.
- Requires the financial obligations of such a plan to be met increasingly by those who benefit from the investments.

2.2.3 GENERAL CONCLUSIONS ON VISION 2020 / OFFICIAL PLAN DOCUMENTS ON THE TRANSPORTATION SYSTEM

Fundamental changes are required soon.

Evolutionary not revolutionary changes are desirable.

Results will not occur overnight.

Factors influencing what will happen and which make it difficult to achieve Regional goals:

- Impacts of special interests groups
- Inertia associated with status quo
- Demographics
- Committed developments
- Cost of improvements exceeding ability to pay
- Lack of awareness of implications of current trends
- Resistance to change by many users of auto mode
- Must implement changes now to move towards goals
- Not likely to completely achieve objective within 25 years

Must be publicly and politically acceptable.

Must fit within a gradual change of attitude of the population towards transportation and the environment.

2.2.4 IMPLICATIONS OF STATUS QUO

Considerable roadway expansion will be required to accommodate growth.

Major costs are associated with provisions of new auto oriented transportation facilities.

Transit ridership will continue to decline while costs increase.

Dependence on the private automobile and single occupant vehicle for travel in peak periods will continue to grow.

Trends support suburban encroachment (urban sprawl) into rural areas with low density development.

Downtown core will continue to decline for shopping and culture and as a Regional centre.

Environmental deterioration will continue in terms of local air pollution, noise impacts, global warming, visual intrusions.

Roadways will remain unattractive to bicyclists and pedestrians

Continued high traffic volumes will occur through the Central Area

Overall plan will not meet MOEE Master plan requirements, necessitating many individual EA's for projects

Community impact will continue to be a major issue (neighbourhood safety concerns)

3 STUDY APPROACH

3.1 NEED FOR A REGIONAL TRANSPORTATION PLAN

Region has not had comprehensive transportation review for over 20 years.

VISION 2020 and Official Plan require new transportation strategies and detailed plans.

Significant changes are occurring

- Suburban population growth
- Shifts in employment locations
- Commuting to Greater Toronto Area
- Aging population
- Public awareness of environmental impacts

High cost of transportation facilities and services versus limited funds available present a real problem.

There is a need for framework to address specific issues.

There is a need to meet the Master Plan requirements of the Ministry of Environment and Energy (MOEE) for transportation facilities

3.2 MAJOR TRANSPORTATION ISSUES THAT NEED TO BE ADDRESSED

Land Use and Geography

- Population growth continues to occur in outlying areas.
- The escarpment forms a major barrier to central employment concentrations.

Costs of roadway maintenance and proposed new facilities exceed present funding availability

Transit ridership continues to decline on existing services.

Excess supply of low cost all-day parking in Central Area works against transit

Public concerns with neighbourhood and environmental impact of car traffic continue to grow

Increased demands for services for persons with special needs such as transit for disabled persons, facilities for cyclists, and pedestrian amenities.

Exhibits 3.1 and 3.2 illustrate the study organization and study approach.

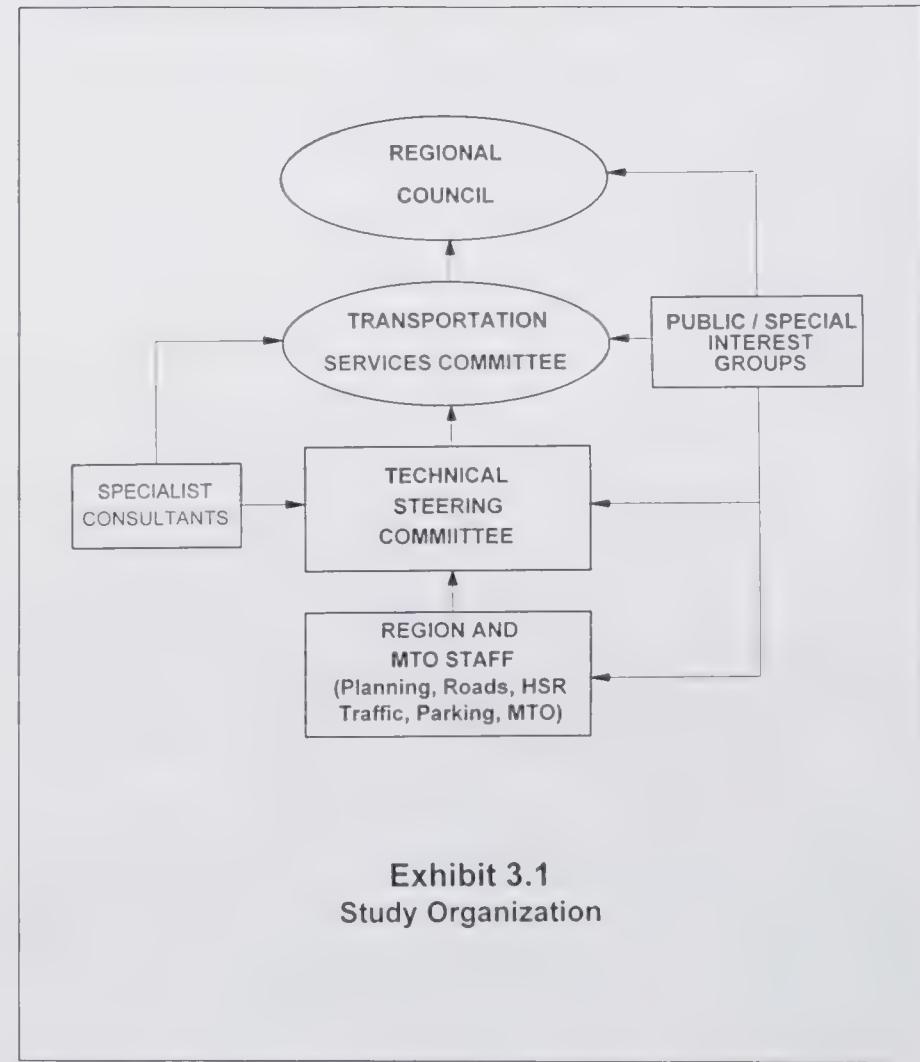
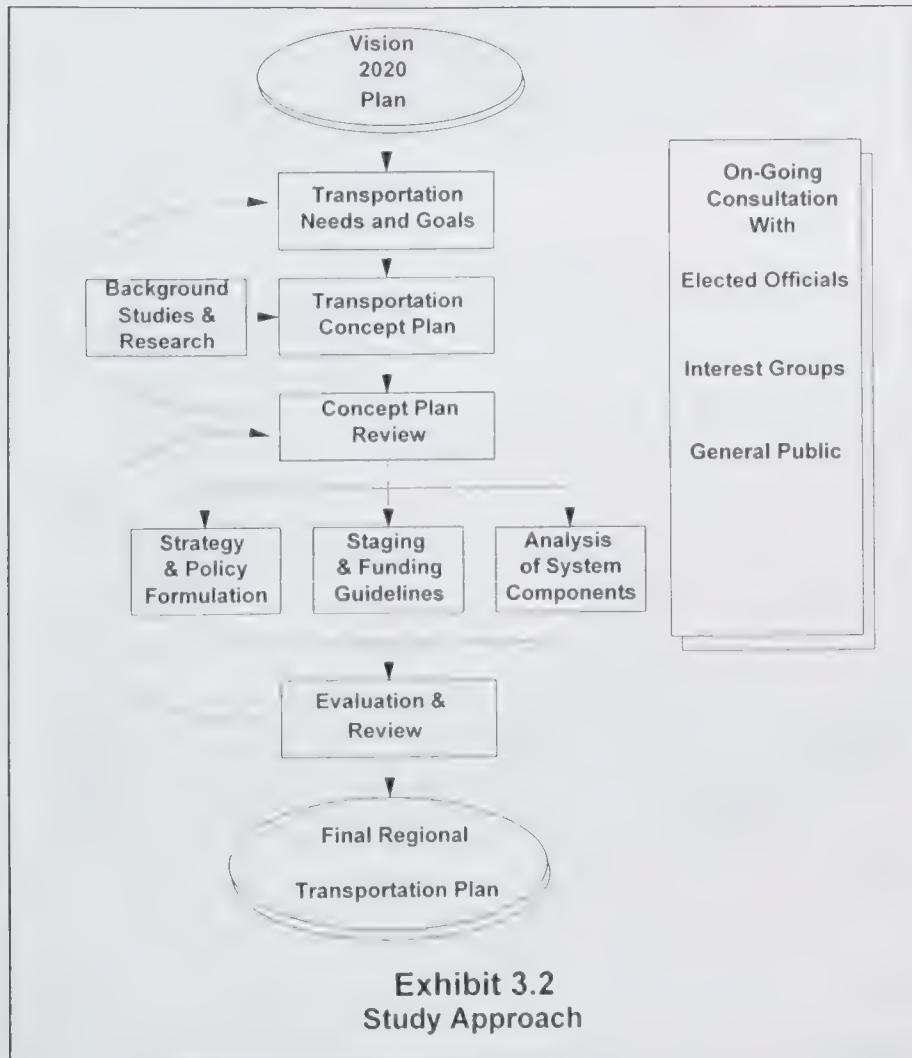


Exhibit 3.1
Study Organization



3.3 STUDY PURPOSE

The specific objectives of the Regional Transportation Review are as follows

- Review existing transportation system and travel patterns
- Assess growth and travel needs
- Outline directions to achieve VISION 2020 goals and objectives
- Develop transportation programs to support planned development in Region's Official Plan
- Prepare a transportation master plan, including
 - 10-year outline of project priorities
 - Capital budget program.
 - Guiding policies for managing transportation services and programs for all modes of travel.
- Meet master plan requirements of MOEE for transportation facilities.

3.4 PUBLIC CONSULTATION AND INPUT

Public involvement and consensus-building are critical to the success of policy development, planning and project implementation. The credibility and acceptability of policy directions and technical solutions often depend on the success of the public involvement and consultation processes that are undertaken. In turn, the validity of those processes is dependent on three key requirements: broad access, open information, and adequate opportunity for input.

It is essential to share information in an open manner and to involve the public as early as possible in the process. It is just as important for the public to believe "facts" and "issues" are objective as it is for those facts and issues to be technically sound. In addition, the public must feel that there has been adequate opportunity to influence the process, and that public concerns have been addressed in a positive and responsive manner. For this to occur, it is crucial that the expectations and opportunities for public input are clearly defined at the beginning of the process, and repeatedly emphasized. The Hamilton-Wentworth Transportation Review is the first study to attempt to detail some of the goals and objectives put forward in the VISION 2020 document. As such, the public consultation was designed to be a continuation of the public consultation process undertaken in the VISION 2020 study.

At the outset of the Regional Transportation Review, it was recognized that some of the changes required for the transportation system would involve restrictive measures such as giving more priority to transit vehicles and bicycles, reducing the supply of inexpensive parking in the city centre, diverting vehicular traffic to routes with less impact on the community and so forth. Therefore, it was important to establish a consultation process which enabled the study team to assess how acceptable different measures would be to the community. Also, the process provided the opportunity for the study team to inform the various interest groups of study findings and progress.

The main components of the public consultation process were as follows:

- A mailing list of all identified community interest groups and individuals was established at the outset and names were added as requested (200+)
- Project newsletters, questionnaires, notices, and related information on the Study were distributed at regular intervals
- A Focus Group of approximately 20 persons representing a range of different interests (eg. Hamilton Automobile Club, Downtown Businesses, Ontario Trucking Association, Greenpeace) was formed and was used as a sounding board for the Project team at specific points in the study
- Public Information Centres and Workshops were held for persons on the mailing list and for the public at large
- Project staff made themselves available to attend meetings with special interest groups throughout the study
- Meetings were held with MOEE representatives to insure that all their requirements were met
- Several meetings were held with the Transportation Services Committee

In general terms, it was felt that the Focus Group meetings were the most helpful form of public consultation because the discussions tended to reflect the variety of opinions and views in the community. While activities such as Public Information Centres were useful, they were not heavily attended and the participants were probably more supportive of sustainable transportation proposals than the community at large. However, all of these activities served to increase public awareness of the study and to provide opportunity for input.

4 EXISTING AND FUTURE CONDITIONS

4.1 HAMILTON-WENTWORTH REGION

Regional Municipality comprises of six area municipalities: Ancaster, Dundas, Flamborough, Glanbrook, Hamilton, and Stoney Creek.

The study area is located at western end of Lake Ontario. Major natural features of the study area are:

- Hamilton Harbour and Lake Ontario
- Niagara Escarpment
- Cootes Paradise and Royal Botanical Gardens

The Region has a population of approximately 450,000 persons and a land area of over 1,120 square kilometres.

Approximately 95% of the population live in the urban area of the Region which comprises only 20% of the land area.

Heavy manufacturing located in the Bayfront area is an important component of the Regional economy. Currently economic activity is shifting towards service industries located in outlying business parks as well as the Central Area.

Transportation system in Region includes

- Two major provincial highway corridors through Region (Highway 403 Q E W)
- Network of Regional Roads throughout urban and rural area.
- Public transit service in most urban areas.
- Inter-regional bus and rail transit service by GO Transit and intercity bus service by several private carriers.
- Rail freight service by both major national railways.
- Major airport providing cargo and passenger service.
- Hamilton Harbour providing cargo shipping services on Great Lakes and overseas

4.2 LAND USE

The distribution of population and employment are major factors affecting personal travel patterns and goods distribution in the Region.

4.2.1 POPULATION FORECASTS

The existing and projected population levels are shown in Table 4.1

TABLE 4.1

PROJECTED POPULATION LEVELS

	1991	2001 Forecast	2021 Forecast
Hamilton (Lower City)	186,300	186,800	186,600
Hamilton (Mountain)	131,400	148,000	155,400
Stoney Creek (Heritage Green)	11,000	18,100	35,900
Stoney Creek (Urban Lower City)	33,900	36,100	39,900
Stoney Creek (Rural)	5,100	8,200	11,100
Glanbrook	9,800	11,900	15,900
Ancaster (Urban)	18,200	24,400	38,400
Ancaster (Rural)	3,800	4,100	4,500
Dundas	21,900	23,400	25,400
Flamborough (Rural)	8,100	8,800	10,600
Flamborough (Waterdown)	21,500	28,200	42,300
Total	451,000	498,000	566,000

In 1991 240 000 persons or 54% lived in the urban area below the Escarpment

By 2021 250 000 persons or 44% will live in the urban area below the Escarpment

Major population growth areas between 1991 and 2021 are:

- Hamilton Mountain +24,000 persons
- Stoney Creek (Heritage Green) +25,000 persons
- Ancaster (Urban) +20,000 persons
- Flamborough (Waterdown) +21,000 persons

Overall Regional population growth of about 115,000 persons in 30 years will require approximately 63,000 new housing units.

4.2.2 EMPLOYMENT FORECASTS

The existing and projected employment levels are presented in Table 4.2

TABLE 4.2
PROJECTED EMPLOYMENT LEVELS

	1991	2001 Forecast	2021 Forecast
Hamilton (Lower City)	133,000	142,200	155,000
Hamilton (Mountain)	28,600	36,000	41,400
Stoney Creek (Heritage Green)	700	1,400	3,100
Stoney Creek (Urban Lower City)	14,000	16,700	19,800
Stoney Creek (Rural)	1,200	4,200	4,500
Glanbrook	1,700	2,000	5,000
Ancaster (Urban)	2,500	4,200	5,500
Ancaster (Rural)	1,700	3,800	5,500
Dundas	5,300	6,000	6,400
Flamborough (Rural)	2,000	2,300	5,800
Flamborough (Waterdown)	4,300	5,200	7,000
Total	195,000	224,000	259,000

In 1991, 152,000 jobs or 78% were located in the urban area below the Escarpment

By 2021, 181,000 jobs or 70% will be located in the urban area below the Escarpment

Growth in employment will increasingly be distributed across Region but major concentration of jobs (60%) will still be located in Hamilton (lower city) in year 2021.

4.2.3 LAND USE ISSUES

Population growth (105,000 persons) above the Escarpment and employment growth below the Escarpment (29,000 jobs) will contribute to increased travel demand across this major natural barrier

Population growth in fringe areas (70,000 persons) which currently have minimal transit service will tend to be more auto-oriented unless aggressive steps are taken.

The anticipated employment growth in Hamilton (Lower City) will help maintain a strong Regional Centre and will facilitate greater public transit use. However, various supporting land use policies and actions will be required to reverse recent trends of a declining Central Area.

Employment growth within Hamilton-Wentworth will be dependent on the competitive position of Region, including good transportation access to surrounding market areas. Improved roadway access to major Provincial Highway corridors (Highway 403, Q.E.W.), Hamilton Harbour and Hamilton Airport is needed to support this goal

Employment growth in outlying areas (20,000 jobs) will be more difficult to attract to public transit mode. Most commuters will depend on automobile access to these sites

The Region's flexibility to significantly change year 2021 development patterns is limited by the fact that 75% to 80% of year 2021 population and employment is already in place. This is illustrated in Exhibit 4.1

4.3 TRAVEL FORECASTS

4.3.1 BASIS FOR TRAVEL FORECASTS

Estimates of future roadway and public transit travel were developed by Regional Travel Forecasting Group

Travel forecasts were developed with a computer-based model. Model inputs include:

- Existing travel characteristics established through surveys and counts
- Estimates of future population and employment by zone
- Alternative roadway and transit networks.
- Specific factors used to test different assumptions.

Travel forecasts were based on A.M. Peak Hour Analysis. Forecasts of bicycle and walking trips were not developed and trucking needs were investigated separately.

4.3.2 TRAVEL FORECAST SCENARIOS

A variety of forecast scenarios were tested to reflect the potential range of future conditions. This range is best represented by two scenarios:

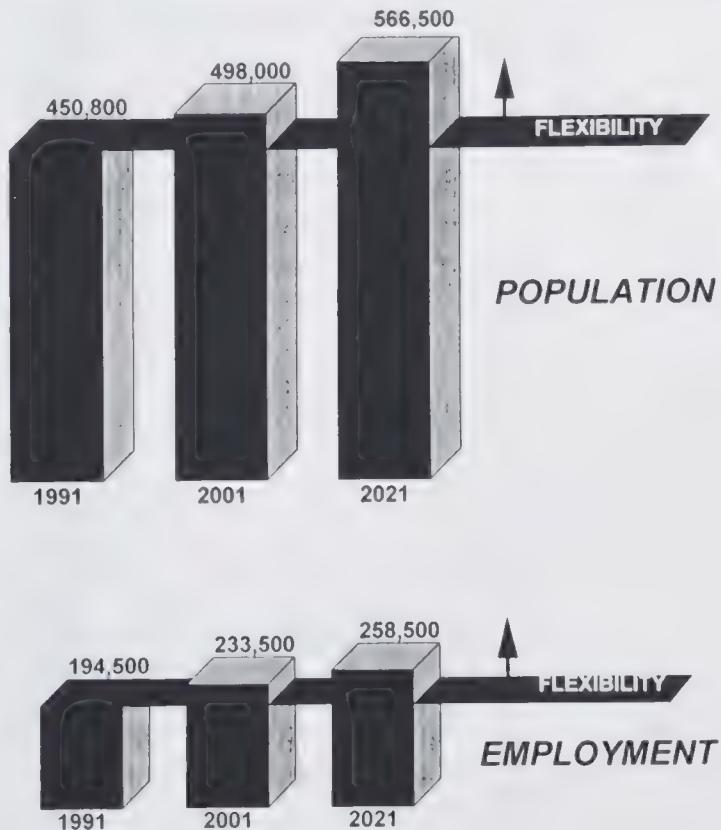


Exhibit 4.1
Population and Employment Forecasts

Trends Scenario

Commuter travel to destinations outside Hamilton-Wentworth would increase at a greater rate than Regional development

Public transit usage will remain at current levels

VISION 2020 Scenario

Development of employment opportunities within the Region would match population growth and external travel would increase at similar rate as internal levels

Public transit usage would start to improve by year 2001 and would be double current rates by year 2021

Exhibit 4.2 provides an illustration of the forecast number of A.M. peak hour trips for these two scenarios

4.3.3 ASSESSMENT OF TRAFFIC CONDITIONS

Traffic corridors generally experiencing congestion or capacity shortages are as follows

- Main / King Street corridor crossing Highway 403 (Dundurn Street Screenline)
- Roadways crossing the west, central and east escarpment screenlines. Traffic growth and potential capacity shortages are most significant for the east and west escarpment crossings

The projected traffic conditions at the critical screenlines are outlined in Table 4.1

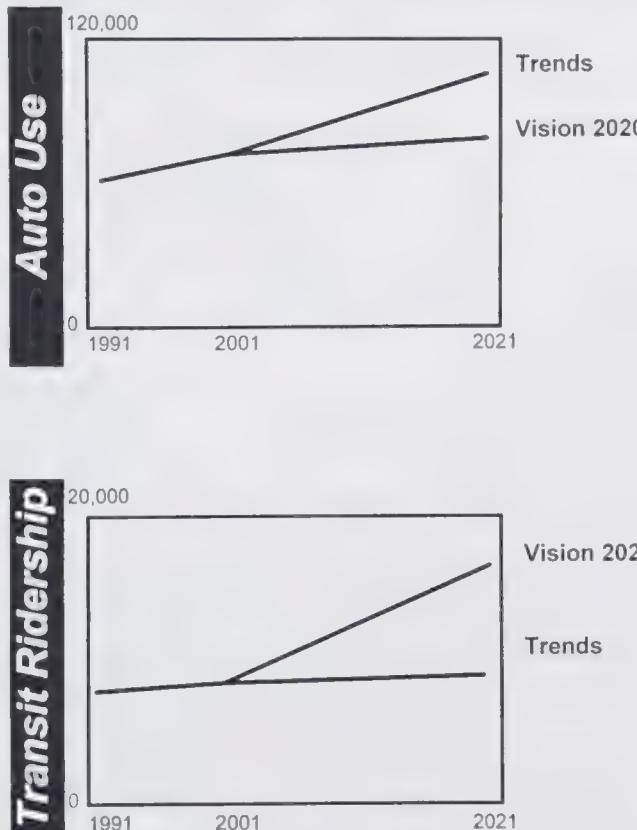


Exhibit 4.2
Range of Travel Forecasts

TABLE 4.3
A.M. PEAK HOUR AUTO TRAVEL FORECASTS FOR YEAR 2021

(Peak Direction) Screenline	Existing Road Capacity 1994 (vph)	Trends Scenario Forecasts 2001 (vph)	Trends Scenario Forecasts 2021 (vph)	VISION 2020 Scenario Forecasts 2021 (vph)
Dundurn St. (Eastbound)	7,600	6,400	9,800	7,250
West Escarpment (Northbound)	4,400	4,000	6,700	5,100
Central Escarpment (Northbound)	8,200	7,100	8,400	6,600
East Escarpment (Northbound)	2,200	4,200	5,200	4,400
Parkdale Ave /Woodward Ave (Westbound)	8,800	6,700	8,550	6,400
Flamborough / Burlington Escarpment (South-Eastbound)	4,200	3,100	6,000	4,350

The forecasts indicate that auto traffic will grow significantly over next 25 to 30 years

- In the Trends scenario, auto travel increases almost 70%
- In the VISION 2020 scenario, auto travel increases about 25%

Under the Trends Scenario, auto traffic demand will be very close to or exceeding existing roadway network capacity in 25 to 30 years for most major travel corridors

Under VISION 2020 scenario, auto traffic demand will be exceeding existing capacity in only a few travel corridors, namely

- East Escarpment crossing
- West Escarpment crossing
- Highway 6 corridor crossing Flamborough-Burlington boundary

Auto traffic demand will approach capacity at the Dundurn Screenline

4.3.4 FUTURE TRANSIT CONDITIONS

Specific Screenlines utilized to assess the future passenger volumes in major transit corridors are listed in Table 4.4.

TABLE 4.4
A.M. PEAK HOUR TRANSIT TRAVEL FORECASTS FOR YEAR 2021

(Peak Direction) Screenline	Trends Scenario Forecasts (2001) (pph)	Trends Scenario Forecast 2021 (pph)	VISION 2020 Scenario Forecast 2021 (pph)
Dundurn St. (Eastbound)	800	1,000	1,950
West Escarpment (Northbound)	200	300	1,050
Central Escarpment (Northbound)	1,200	1,900	3,700

Under Trends scenario, peak hour transit volumes are low. Maximum corridor transit passenger volume would be 1,900 passengers per hour crossing the central escarpment

Under VISION 2020 scenario, peak hour transit volumes in major corridors are estimated as

- 1,950 passengers per hour in east-west corridor between McMaster University and East Mountain
- 3,700 passengers per hour in central escarpment crossing between Hamilton mountain and Downtown Hamilton.

5 DEVELOPMENT OF TRANSPORTATION PLAN

The major components of the Transportation Plan are outlined in the following sections

5.1 PROVINCIAL TRANSPORTATION PLANS

The Provincial Ministry of Transportation (M.T.O.) has recently released a report entitled "Transfocus 2021: A Strategic Transportation Plan for the Niagara - Lake Erie Area". This report outlines Provincial transportation plans which will affect Hamilton-Wentworth Region over the next twenty-five years. The major Provincial recommendations are summarized below

Short Term (up to Year 2000):

- Relocation of GO Transit terminal to T.H. & B. Station in Downtown Hamilton
- Widen Q.E.W. to 6 lanes from Hamilton to St. Catharines
- Widen Highway 5 to 4 lanes from Waterdown to Highway 6
- Upgrade Highway 6 cross-section from Highway 5 to Frelton
- Complete construction of Highway 403 from Ancaster to Brantford.
- Commence construction of new Highway 6 south from Highway 403 to Hamilton Airport and Caledonia Bypass

Medium Term (2001 to 2011):

- Provide all day GO Rail service to Hamilton GO Stations.
- Widen Q.E.W. from Burlington to Niagara Region
- Widen Highway 403 to 8 lanes from Q.E.W. to Main Street.
- Widen Highway 403 to 6 / 7 lanes from Main Street to Ancaster
- Widen Highway 6 to 6 lanes from Highway 403 to Highway 5 bypass
- Construct new 4 lane bypass of Waterdown (Highway 5)

Long Term (2012 to 2021):

- Widen Highway 5 to 4 lanes from Sydenham Road to Highway 8

The Provincial plans are subject to change but they provide a useful reference and framework for Regional Transportation plans

5.2 REGIONAL ROADWAYS

5.2.1 EXISTING CONDITIONS

There are approximately 600 km of Regional Roads, including arterial roads in the urban area and major suburban roads in the rural area.

Two major Provincial freeway corridors cross the Region

- Q.E.W. connecting Greater Toronto and Niagara Frontier
- Highway 403 connecting Greater Toronto and Southwestern Ontario

Several other major Provincial highways run through parts of Region (Highway 6, Highway 5, Highway 8, Highway 20, Highway 2)

5.2.2 ROADWAY ISSUES

Central Area Traffic

The current roadway network is strongly oriented towards Downtown, thus encouraging through automobile and truck traffic.

There are a limited number of bypass routes within central urban area for cross-town auto traffic and through truck traffic

Capacity Deficiencies

Discontinuities in the road network at major geographic barriers (Niagara Escarpment, Hamilton Harbour, Cootes Paradise) have created constraints where traffic demand is approaching capacity

The existing conditions as indicated by a ratio of the peak hour volume to the capacity of the roadway (v/c) are summarized in Exhibit 5.1

Under a Trends scenario, the capacity deficiencies would increase significantly over the next 20 to 30 years (without new roadway construction). Most screenlines would have major capacity deficiencies and the roadway network would be heavily congested throughout.

Under the VISION 2020 scenario, capacity deficiencies will still occur at certain critical locations (without new roadway construction).

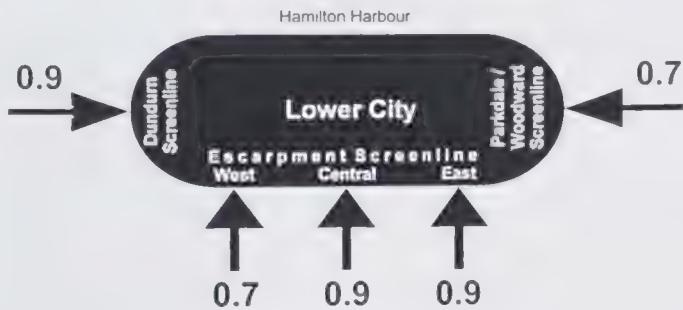


Exhibit 5.1
1991 A.M. Peak Hour Travel Conditions

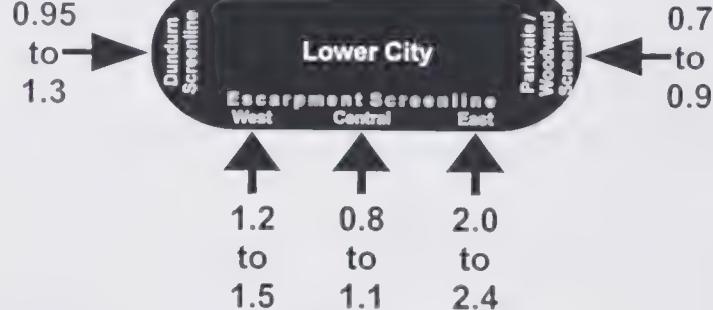


Exhibit 5.2
2021 A.M. Peak Hour Travel Forecasts
(Conditions Shown for 1991 Roadway Network
with no Additional Improvements)

The estimated future capacity deficiencies as indicated by a ratio of the peak hour volume to the capacity of the roadway (v/c) are summarized in Exhibit 5.2, with the lower number in the range representing the VISION 2020 scenario and the higher number representing the Trends scenario, both assuming the existing network capacities

Community Traffic Impacts

Through traffic on local neighbourhood streets creates safety and noise impacts. This is of particular concern with grid network of local streets and at barriers where arterial network is not continuous

One-way street systems are confusing to some motorists, are more circuitous than a two-way street system and affect choice of logical bicycle routes

Access to New Development

It is costly to provide full urban standard arterial roadway access to non-contiguous new residential development. Many developments currently rely on improvements to existing arterials

Business-industrial parks require good truck access to major Provincial corridors to attract new economic development

Infrastructure Maintenance

Older roadways and related older infrastructure are deteriorating and will require periodic rehabilitation and ongoing maintenance to enable them to remain useable

5.2.3 REVIEW OF TRUCKING NEEDS

Current Approach

Region has a designated network of truck routes for use by heavy vehicles

Most but not all arterial roads are designated as truck routes

A Truck Route Sub-Committee has been established to provide input to Truck Route System

It is estimated that the major future roadway needs as they pertain to trucking demands within the Hamilton-Wentworth Region will be as follows:

- With the planned new and developing existing industrial areas above the escarpment it is anticipated that there will be growth in the north-south truck travel across the east and west escarpment, including Highway 403 and Highway 20
- The planned completion of Highway 403 from Toronto to Woodstock (including the widening to six lanes) will result in an increase in both through and internal / external trips. This corridor traffic growth will emphasize the need for efficient access to / from Highway 403
- There is growth anticipated across the escarpment on Highway 6 North as a result of the industrial development and the Provincial Highway changes
- There is growth in trucking demand to / from the Niagara Frontier along the Q.E.W. as a result of Canada / United States trade trends and agreements.
- The continued dependence of the BayFront industrial area on highway access for the shipment of their goods further emphasizes the importance of good highway access. This includes a connection from Burlington Street to the Q.E.W. and Highway 403.

Major Trucking Needs

The recommended long term strategy for meeting the trucking needs is to develop a "Truck Route Loop" consisting of high standard roads connecting the existing and future major industrial / commercial areas to the Provincial corridors in the most efficient manner to accommodate goods movement. The "Truck Route Loop" is shown in Exhibit 5.3 and consists of the following Regional Roadways

- The East-West Red Hill Creek Expressway
- The North-South Red Hill Creek Expressway
- The Hamilton Perimeter Road initially to Bay Street and ultimately to Highway 403

which would connect to the following Provincial Roadways:

- Highway 6 new (improved airport access),
- The upgraded / extension of Highway 403 (Toronto to Woodstock plus widening to six lanes), and
- The widening of the Q.E.W. from Hamilton to Niagara Falls to six lanes

This series of roadways will provide attractive alternatives to local and through traffic and will divert traffic away from the Downtown and the Central Area. They will provide better service to the industrial and commercial areas

5.3 MAJOR FEATURES OF THE ROADWAY PLAN

Major roadway system is planned to carry through and truck traffic to the Provincial system. The plan must protect the Central Area from unnecessary through traffic and enhance the pedestrian, bicycle and transit modes

Arterial system will be upgraded to meet current demand and new growth areas.

The plan must provide a balance between auto demands and needs of transit and cyclists

5.3.1 MAJOR NEW PROVINCIAL ROADWAYS

The planned Provincial Highway improvements as listed below will eliminate some potential deficiencies

Highway 403 widening (one lane each direction) will provide required additional capacity across Western Escarpment screenline.

Highway 6 (south), a new four lane roadway will provide direct access to Hamilton Airport and provide some diversion of Haldimand-Norfolk traffic away from the City Centre.

Highway 6 (north) improvements (widening and access control) and Highway 5 bypass of Waterdown will provide additional capacity across the escarpment along the Flamborough-Burlington Boundary.

5.3.2 MAJOR NEW REGIONAL ROADWAYS

The major new Regional Roadways will include the following:

Red Hill Creek Expressway

Provides truck and vehicular access to new business and commercial developments

Provides additional capacity across eastern escarpment screenline

Facilitates the diversion of vehicular traffic away from Central Area and adjacent roads.

Provides connections to Highway 403 and Q.E.W.



The East-West portion of Expressway is under construction while the alignment and alignment options for the North-South portion are under discussion.

Hamilton Perimeter Road (HPR)

The HPR will provide a bypass route for truck traffic and through traffic around Downtown area and the North End Neighbourhoods

The ultimate route will provide a connection between Bayfront Industrial Area and Highway 403

It will provide additional capacity across Dundurn Screenline, thereby reducing traffic volumes on parallel east-west streets.

There are three options for development of the Hamilton Perimeter Road

Option 1

- This option would provide a new two-way, four-lane roadway from Wellington Street to Bay Street with some minor improvements to Bay Street.
- The cost is approximately \$50 million
- It will provide a bypass of the CBD for traffic between Bayfront and West end
- It could form the initial stage of a full Perimeter Road to Highway 403.

Option 2

- Provides a new two-way, four-lane roadway from Victoria Street to Bay Street, major improvements to Bay Street, widening of York Blvd. to 6 lanes up to the ramp connection and new connections between York Blvd. and Highway 403 (Brantford).
- The cost would be approximately \$100 million
- It will provide a bypass of CBD
- It provides an improved link between Highway 403 and Bayfront area
- It is not fully compatible with a full Perimeter Road and would involve a "throw away cost".

Option 3

- This is the full Hamilton Perimeter Road from Victoria Street to Highway 403 connecting to Burlington Street.
- It will cost approximately \$350 million
- It will provide a bypass of the CBD, and a direct link between Highway 403 and the Bayfront area
- It provides increased capacity across the Dundurn screenline.

Staging of the Perimeter Road

Option 1

- It is the least costly
- It is compatible with Options 2 and 3 (Allows for incremental implementation).
- It does allow traffic to by-pass the Central Area

Option 2

- It is more effective in removing through and truck traffic from Central Area than Option 1 because of full movement interchange at Highway 403 / York Blvd.
- It is not completely compatible with Option 3 (throw away costs related to Highway 403 / York Blvd. interchange)
- A rebuilt Bay Street is consistent with the ultimate design

Option 3

- This option accomplishes all the objectives for the Perimeter Road
- It has considerably higher cost than Option 1 or 2.

5.3.3 CENTRAL AREA ROADWAY PLAN

The objectives of the Central Area Roadway plan are:

- Divert through vehicular and truck traffic away from Downtown core.
- Provide opportunities for improved pedestrian, bicycle and public transit services.

Existing Situation:

- The one-way street network currently provides very efficient traffic operations.
- The King Street / Main Street couplet and James Street / John Street couplet are the heaviest auto routes, transit routes and pedestrian routes with the CBD. All modes are competing for the same available road space.
- In the Central Area (between Queen and Victoria, Charlton and Barton Streets) the overall arterial road network has more than adequate capacity in both east-west and north-south directions

- Main Street / King Street are the only direct routes between the Central Area and McMaster University.

Operational Strategy:

The key to achieving the objectives is to develop a Downtown circulation / bypass system of routes as follows

- Wellington Street / Victoria Street east of Downtown core area.
- Wilson Street and Cannon Street north of Downtown core area.
- Queen Street and Bay Street west of Downtown core area
- Charlton Avenue and Herkimer Street south of Downtown core area connecting central escarpment crossings

A Downtown circulation / bypass route would be enhanced through minor geometric changes and traffic operational strategies to encourage smooth flow of traffic. The Downtown circulation / bypass route strategy is illustrated in Exhibit 5.4

The initial stage of the Hamilton Perimeter Road will support the Downtown circulation / bypass route. Modifications to Bay Street to provide two-way traffic north of King Street will be required

Within Downtown core area, the bypass routes will take traffic off the Downtown core routes and thereby free up capacity. This will allow for the utilization of existing roadway space for transit priority measures, improved pedestrian facilities and bicycle facilities on routes such as Main Street, King Street, James Street and John Street

Hunter Street will become a continuous two-way street on the south side of the Main Street / King Street corridor. It will also provide an opportunity for a designated bicycle route through the CBD

5.3.4 CENTRAL ESCARPMENT CROSSINGS

The primary objectives for improvement to the Central Area escarpment crossings are:

- To avoid construction of new or widened roadways across escarpment.
- To minimize traffic impacts on adjacent neighbourhoods
- To support strategies to divert traffic away from the Downtown core

The planned improvements and changes to the Central Escarpment Crossings are as follows:

Claremont Access

Develop Upper James Street - Claremont Access - Wellington Street / Victoria Street couplet as the major traffic route across escarpment

Widen Upper James to 5 lanes as right-of-way becomes available (for capacity and safety) from Inverness Avenue to Fennell Avenue

Jolley Cut

Utilize the Jolley Cut as major transit corridor from Hamilton Mountain into Downtown core by providing priority for transit operations. Also utilize the Jolley Cut as bicycle link between Hamilton Mountain and Downtown core

Accommodating bicycles in the Jolley Cut corridor will require further study. The two main detailed options to be investigated for medium term implementation are

- Reduction of one traffic lane on the Jolley Cut, or
- Construction of a separate structure along side of the existing structure

The development of transit priority measures at the top and bottom of the Jolley Cut should be investigated in the short to medium term.

James Mountain Road

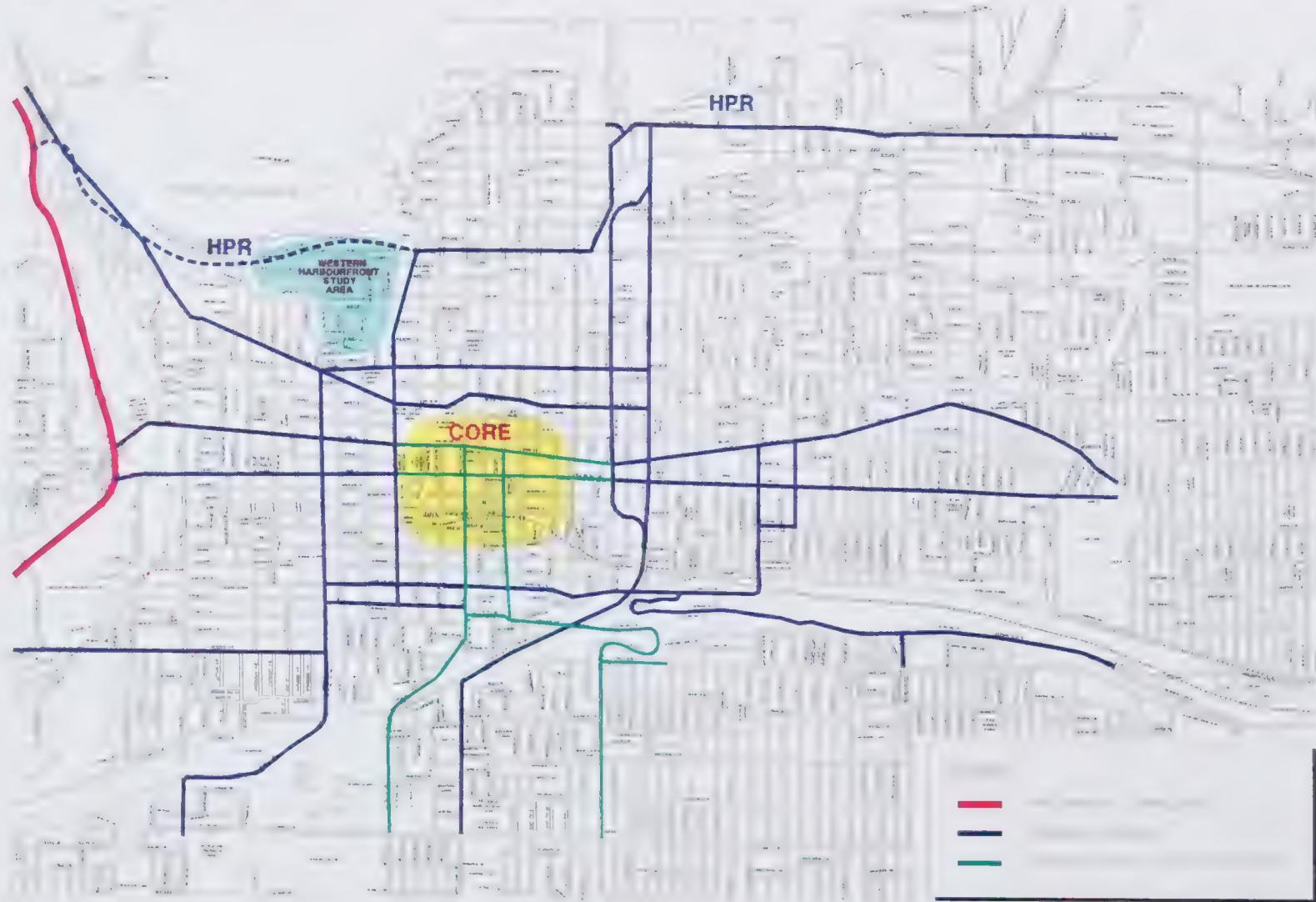
Develop James Mountain Road as major transit corridor connecting West Mountain area and Mohawk College with the Downtown core and the Hamilton GO Station. To accommodate two-way transit operation in P.M. peak, the most likely option would be to develop one lane southbound for mixed traffic and one lane northbound for transit use only.

Beckett Drive

Retain Beckett Drive as an important vehicular route, supporting the bypass of the Downtown core. There are minimal opportunities to significantly improve capacity or vehicular "attractiveness" of this route. Minor improvements through reduction of transit vehicle traffic or operational control of Queen Street - Aberdeen Street intersection may be possible to enhance capacity

Other Central Escarpment Crossings

No major changes are proposed for other escarpment crossings (Sherman Access, Kenilworth Access). Minor geometric changes and traffic control strategies should be utilized to maintain or improve vehicular capacity as opportunities present themselves.



Charlton Avenue and Herkimer Street should be maintained as arterial roads facilitating distribution of vehicular traffic to escarpment crossings and diverting traffic away from the Downtown core area.

5.3.5 MCMASTER UNIVERSITY ACCESS

A specific investigation of this issue was conducted as part of the Transportation Review. It was found that it is feasible to provide an all-directional access for McMaster University at Main Street and Emerson Street but it will reduce surplus capacity along Main Street West. Some of the benefits are

- Improved efficiency of transit access to the site.
- Provision of a direct and visible access to McMaster University.
- Reduced through traffic on Sterling Street will result.

This strategy requires further discussion and investigation between the Region and the University. This concept is illustrated in Exhibit 5.5.

5.3.6 STONEY CREEK ESCARPMENT CROSSINGS

A review of the need for additional escarpment crossing capacity in the area revealed that no significant capacity increase is required. A new Fruitland Road escarpment crossing is not warranted due to cost and environmental impact. Fifty Road is currently designated as a Regional road and is the most appropriate route for long term escarpment crossing requirements. Upgrading of this roadway to Regional standards and designating it as a truck route should be considered.

5.3.7 DEVELOPMENT RELATED ROADWAYS

The major roadways required to accommodate new development are outlined in Table 5.1

5.3.8 NEIGHBOURHOOD TRAFFIC CALMING INITIATIVE

Through traffic on local neighbourhood streets creates problems of reduced safety, noise and vehicular emissions. Through traffic problems are related to arterial network deficiencies, congestion at bottleneck areas and the continuous grid network of local streets. Generally, these conditions are more common in older neighbourhoods.

Objectives of Traffic Calming

To improve safety and security for residents in their community
To increase pedestrian mobility and bicycle route opportunities within the community
To reduce the environmental impact of traffic on neighbourhoods

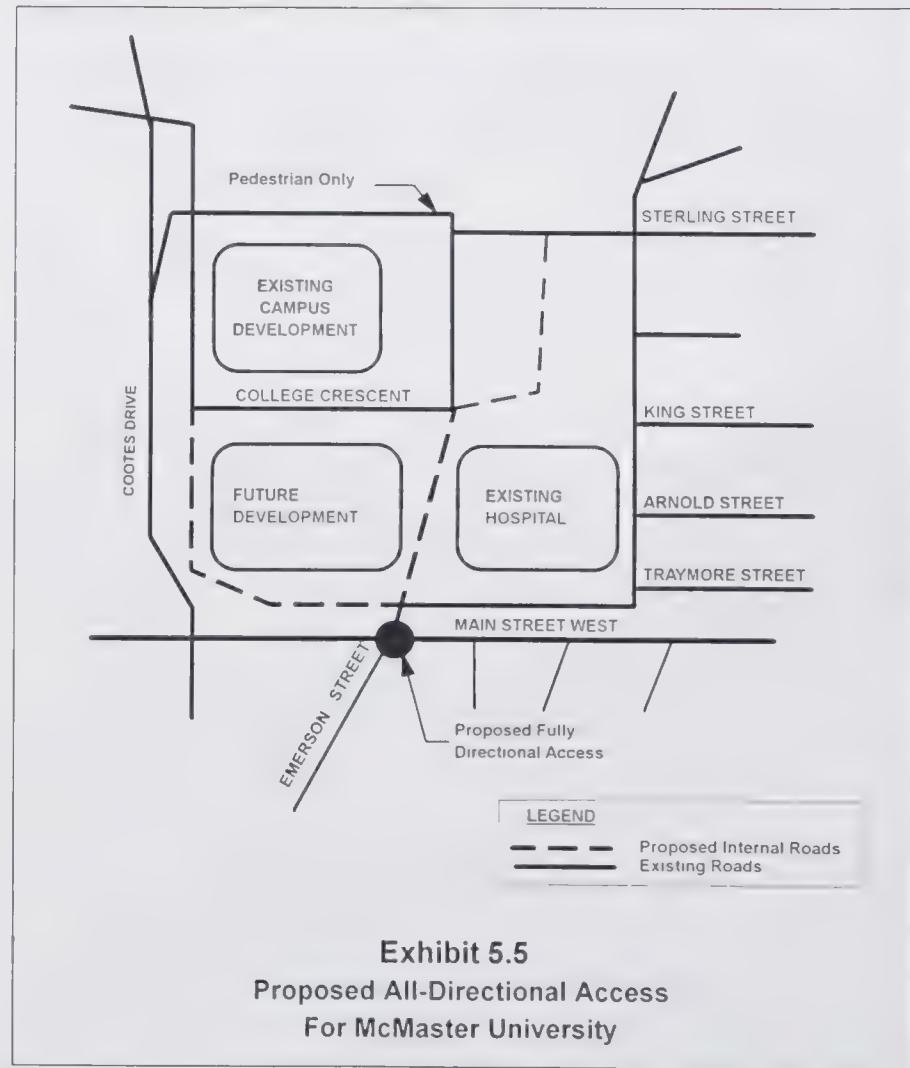


Table 5.1

Roadways Required to Accommodate Future Development

Roadway	Limits	Improvements	Timing
Stone Church Road Extension	Omni Blvd Intersection to Meadowlands Street	New 2 lanes	Short
Stone Church Road Extension	Meadowlands Street to RHCE/Mohawk Road Interchange	New 4 lanes	Short
Darnall Road	RHCE to Stone Church Road	Widen to 4 lanes	Short
Stone Church Road	Garth Street to Darnall Road	Widen 2 to 3 lanes — urban	Short
Rymal Road	Wellington Street to Pritchard Rd		Short
Upper Sherman Street	RHCE to Rymal Road		Medium
Rymal Road	West 5th St to Wellington Street	Widen 2 to 4 lanes — urban	Short
Upper Wentworth Street	RHCE to Rymal Road		Short
Upper Gage Street	RHCE to Rymal Road		Short
Garth Street	Stone Church Rd to Rymal Rd		Medium
Upper Ottawa Street	RHCE to Rymal Road		Medium
Rymal Road	Glancaester Road to West 5th St		Medium
Upper James Street	RHCE to City South Limits	Widen 4 to 5 lanes — urban	Short
Meadowland Street	Stone Church Road Extension to Southcote	New 2 lanes — urban	Medium
Mountain Brow Road Extension	Mountain Brow to Highway 5		Long
Fruitland Road	Barton Street to the Escarpment	New 2 lanes	Long
Glancaester Road	Rymal Road to Stone Church Rd	New 2 lanes — urban	Medium
Mohawk Road	McNiven Road to Wilson Street	Widen 2 to 3 lanes — urban	Short
Wilson Street	Rousseaux St to Fiddler's Green		Short
Stone Church Road	Upper Paradise Rd to Garth St		Short
Upper Paradise Road	Mohawk Road to Rymal Road		Long
West 5th Street	Stone Church Rd to Rymal Road		Long
Upper Wellington Street	Limeridge Road to Rymal Road		Long
Southcote Road	Golflinks Rd to Rymal Road (Highway 53)	Widen 2 to 4 lanes — urban	Long
Mohawk Road	Southcote Rd to Highway 403		Long
Rymal Road	Glancaester Rd to Fiddler's Green		Long
Fruitland Road	Barton Street to Highway 8		Medium
Parkside Drive	Highway 6 to Evans Road		Medium
Hamilton Street	Highway 5 to Waterdown By-pass		Medium
Highway 8 (after transfer)	Millen Road to Jones Road	Widen 2 to 5 lanes — urban	Short
Miscellaneous Other Development Related Roadways	South Mountain and Flamborough	Widenings and new links	as development occurs

Guiding Principles

Priority on Regional arterial roads should be given to accommodating the broader Regional travel needs, including through traffic

Priority on local streets should be given to accommodating neighbourhood concerns such as protecting the community, the environment and providing access to individual properties

Techniques for Neighbourhood Traffic Calming

The development of a neighbourhood traffic calming plan should include consultation with residents, agencies such as police and fire departments and local businesses. The development and implementation of neighbourhood traffic calming plans is primarily the responsibility of each area municipality. Specific measures to reduce speed and discourage short-cutting traffic include the following

Passive Controls

- stop signs
- speed limit signs
- turn prohibition signs
- one-way streets

Controls Which Attempt to Affect Driver Behaviour

- pavement markings, crosswalks, etc.

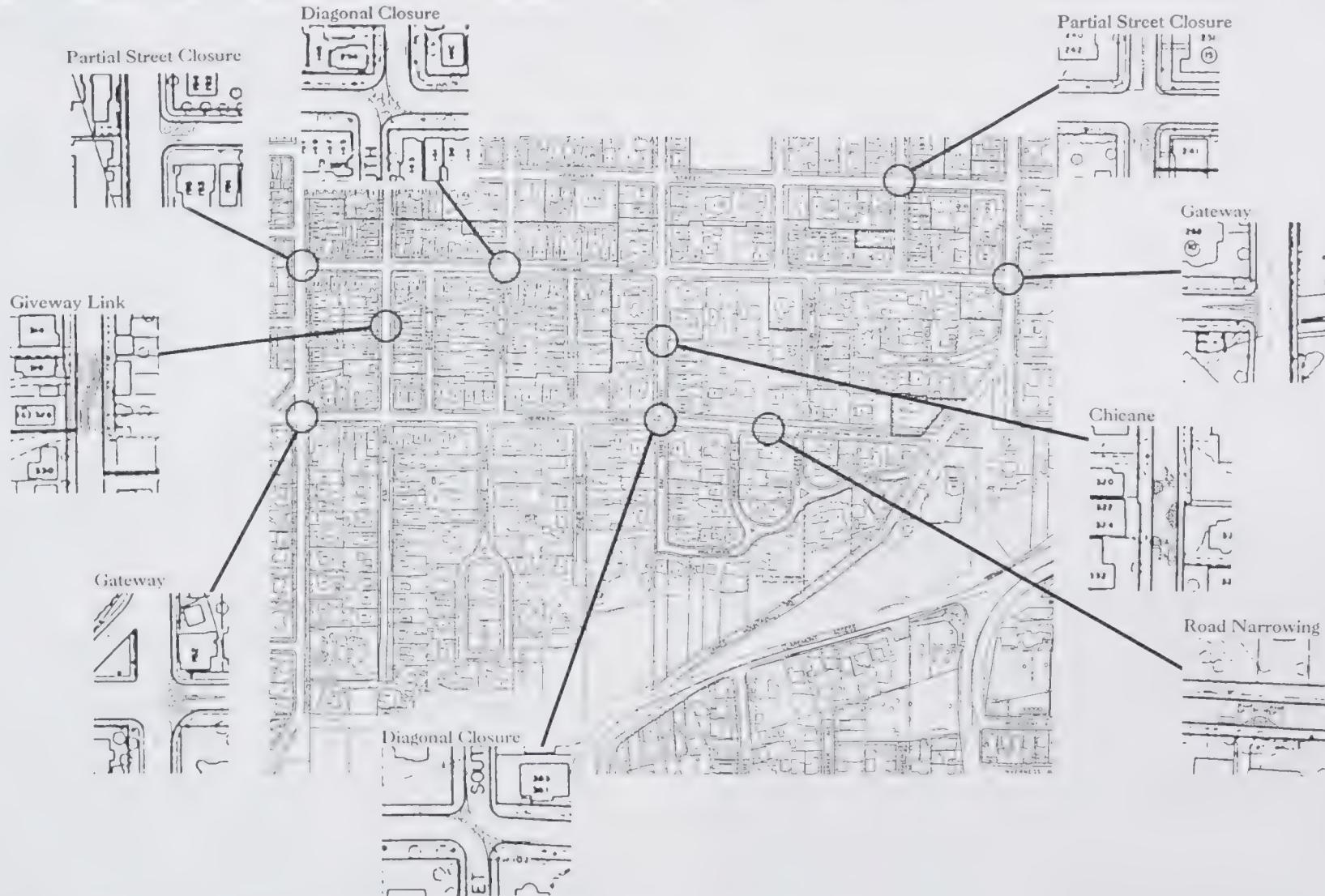
Physical Controls

- speed bumps
- road hump
- rumble strips
- diagonal diverters
- intersection cul-de-sac
- semi-diverter
- forced turn channelization
- median barrier
- traffic circle
- chokers and road narrowing

Potential areas for the application of traffic calming techniques are listed below:

- Durand Neighbourhood
- Kirkendale North Neighbourhood
- Beasley Neighbourhood
- Corktown, Stinson, Central, Lansdale, North End Neighbourhoods

An example of the application of these techniques is illustrated in Exhibit 5.6.



5.3.9 ROADWAY CLASSIFICATION AND JURISDICTION

The existing network of Regional Roads has almost 600 centre line km of roadways. The network was established and has been modified in accordance with criteria established by the M.T.O. and the Region. However, it is recognized that a substantial portion of this network is local in nature with the major concerns primarily related to local area safety, property access, and so forth. Regional administration of roadways serving local functions is difficult as most of the concerns are more properly dealt with by the local municipality.

With ongoing development of the Provincial and Regional network there are logical changes to the current network classification in accordance with the existing M.T.O. / Regional criteria. In the long term this approach would result in the Regional Road network increasing to about 640 km as indicated in the following table.

The application of the current M.T.O. / Regional criteria does not resolve the fundamental concern that a significant portion of the Regional Road network is primarily local in nature and should not be under Regional jurisdiction. As a result, it is recommended that the Regional network should be rationalized so that it only consists of the continuous, higher standard roadways required to accommodate Regional travel. Other roads should be transferred to area municipality jurisdiction. Utilizing this approach, the extent of the Regional Road network would be reduced to about 350 km as indicated in Table 5.2. The network will require further refinement in consultation with the M.T.O. and area municipalities. However, the guiding principle of rationalizing the network to only retain those roads required for Regional needs should be followed.

TABLE 5.2

RATIONALIZED REGIONAL ROAD NETWORK

MUNICIPALITY	EXISTING (km)	M.T.O. / REGIONAL (km)	RATIONALIZED (km)
Hamilton	231	245	167
Ancaster	71	73	36
Dundas	21	21	15
Stoney Creek	63	82	49
Flamborough	144	154	44
Glanbrook	61	56	26
New	—	40	15
Total	591	671	352

5.4 PUBLIC TRANSIT

5.4.1 EXISTING CONDITIONS

Public Transit services are currently operated by HSR under the direction of the Regional Transportation Services Committee. The existing service (1994) operates in Hamilton, Stoney Creek, Dundas and Ancaster. Service in Flamborough was discontinued in 1994. Regional Council determines the level of service and levies a local tax for transit service in the City of Hamilton (Urban Transit Area). The level of service in other Area Municipalities is determined by each municipality and costs are allocated on basis of miles operated in the municipality.

The current service carries 20.5 million trips annually with 174 peak period buses at an annual operating cost of \$53.5 million. The highest transit ridership and level of service is in Hamilton (lower city). Relatively low ridership exists in the urban fringe areas where service is limited. Ridership levels have declined steadily since the mid-1980's. Current ridership is about 50 annual trips per capita in the service area.

5.4.2 CURRENT DEVELOPMENT AND PLANS

GO Transit is constructing a new rail and bus transportation terminal (Hamilton GO Centre) on Hunter Street between James Street and John Street which will open in late 1995.

The HSR has developed a Strategic Plan for next 5 years and an overall increase in level of service of 2 to 3% over 5 to 10 year period is planned. The focus of the plan is:

- Improving quality, convenience and reliability of existing services
- Increasing overall efficiency of Transit service.
- Providing some limited route and service improvements for newly developing areas.
- Increasing accessibility of HSR vehicles and bus stops

5.4.3 OBJECTIVES OF THE PROPOSED TRANSIT PLAN

Improve existing transit services to encourage and accommodate the VISION 2020 goal of 100 annual trips per capita through provision of high operating speeds, reliable service and good passenger amenities

Support the economic and social rejuvenation of Downtown Hamilton by focusing transit services on Central Area and significantly improving accessibility to the area from all parts of the Region.

Develop and implement a more uniform level of service throughout urban areas of Region.

Provide a greater integration of public transit services with urban land use and with other travel modes, particularly pedestrian, cyclists and autos (park and ride)

Develop full accessibility to public transit services for people with mobility limitations

5.4.4 TRANSIT TECHNOLOGY OPTIONS

Three principal transit technologies were assessed for application in Hamilton-Wentworth. These were light rail, busway and rapid bus. They are described as follows

Light Rail Transit

It is an effective technology in corridors with travel demands of 5,000 to 15,000 passengers per hour.

It requires a separate or partially separate right-of-way for operational efficiency and safety

It requires a significant capital investment in line, stations and rolling stock required

No readily available corridor opportunities for LRT in Hamilton-Wentworth are evident in the major travel demand corridors

Busway

It is an effective technology in corridors with travel demands up to 10,000 passengers per hour

It offers flexibility with local service operating on neighbourhood streets combined with line-haul express service on a busway

It requires an exclusive right-of-way or separated roadway for express bus operation.

Capital investment is required for busway and station facilities.

Expressway Bus on Existing Roadways (Bus Rapid Transit)

It is an effective technology in corridors with travel demands up to 5,000 to 8,000 passengers per hour. Generally it has a lower line haul speed and lower capacity than LRT or Busway Technology.

It requires priority over vehicular traffic in congested areas through dedicated lanes, traffic signal priority, bypass lanes, etc. It also requires upgraded passenger facilities at bus stops and

transfer points

Some capital investment is required in physical roadway changes, traffic control and passenger facilities. Capital costs are lower than for LRT and Busways

A review of the Technology options resulted in Express Bus Service on existing roadways being recommended because

- An attractive service level can be provided with reduced travel time and adequate capacity for anticipated passenger volumes
- It does not require major capital investment to implement as it will make use of existing roadway facilities
- It does not preclude consideration of higher capacity technology beyond the 25 year planning period for the study

5.4.5 BUS RAPID TRANSIT DEVELOPMENT

Exhibit 5.7 outlines the recommended transit plan. Three Bus Rapid Transit routes are proposed as follows

McMaster - CBD - Eastgate Square

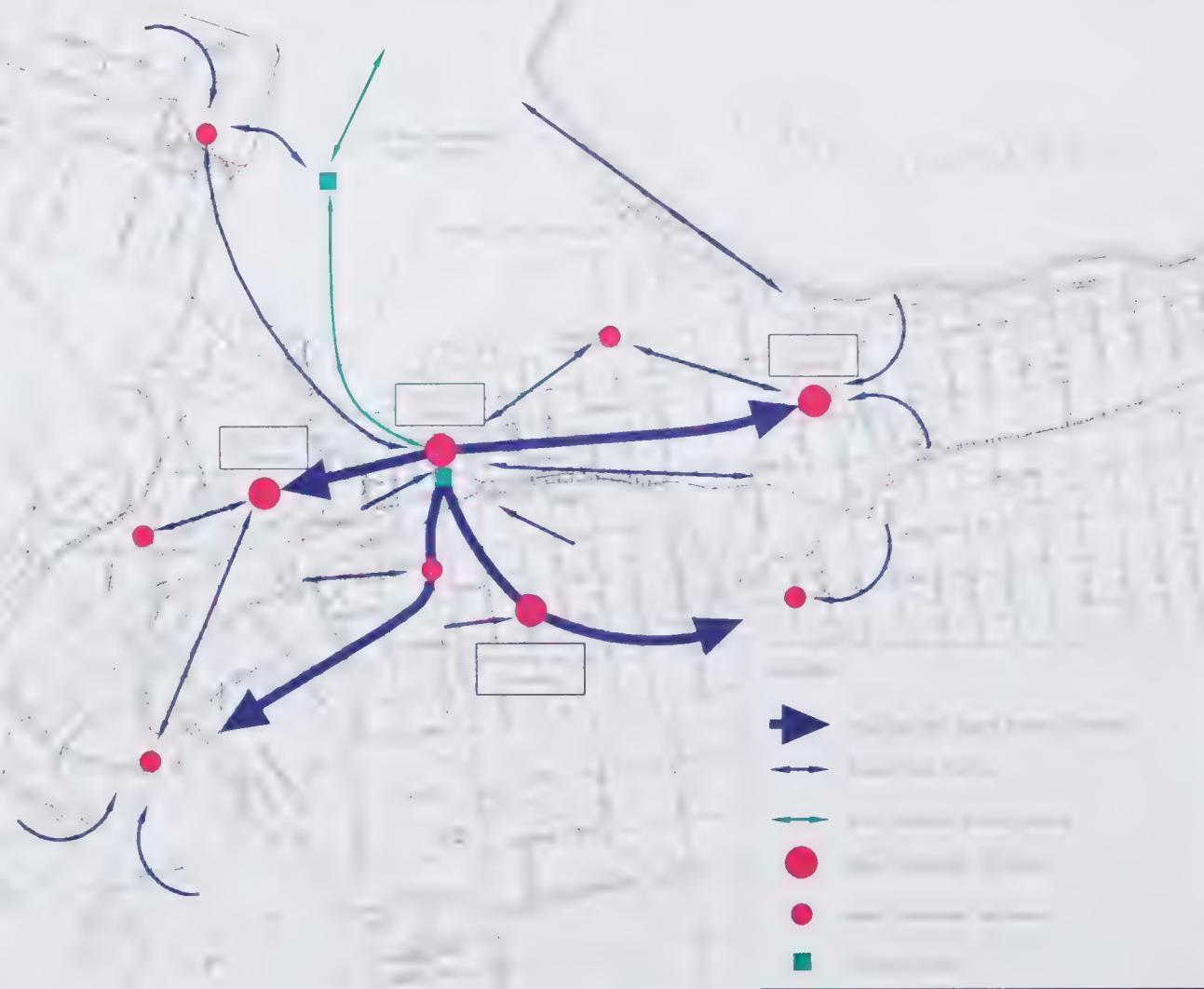
This will involve upgrading of the existing BEELINE service on the route along King Street - Main Street corridor. Major passenger terminals will be provided at Eastgate, Downtown and McMaster University. Transit priority measures should be designed and implemented to ensure a fast and reliable service. These measures could include

- Signal priority at main intersections and terminal access locations.
- Bus only lanes on King Street and Main Street from Queen Street to Wellington Street.

CBD - Limeridge - East Mountain Corridor

The route in this corridor would be via James Street - John Street and Jolley Cut to a major passenger terminal at Limeridge Mall, with future extension further east to Heritage Green area. Transit priority measures to facilitate transit vehicle flow could include:

- Signal priority at main intersections and terminal access locations.
- Bypass lanes at the top and bottom of escarpment access.
- Designation of bus lane on Jolley Cut in conjunction with bicycle, pedestrian and traffic needs



- Bus only lanes on James Street and John Street from Downtown to St. Joseph's Drive

CBD - Mohawk College - West Mountain Corridor

The route in this corridor would be via James Street - John Street, James Mountain Road, West 5th Street to Mohawk College, with future extensions to the West Mountain and Ancaster area. A passenger terminal will be provided at Mohawk College. Transit Priority measures to speed bus flow could include

- Signal priority at main intersections
- Bus only lane on James Mountain Road in P.M. peak
- Bus priority at James Street and St. Joseph's Drive.
- Bus only lanes on James Street and John Street to the GO Terminal and beyond to Main Street

5.4.6 BUS ROUTE AND SERVICE CHANGES

Other bus route changes should be investigated in conjunction with development of the Rapid Bus Transit corridors and major terminals to improve level of service to outlying urban areas, enable integration with Rapid Bus Transit corridors, and ensure a high level of operational efficiency. Specific bus route changes to investigate would include the following

- Modifications of local services in the McMaster - CBD - Eastgate corridor (i.e. KING, DELAWARE) to improve operational efficiency and enable easier passenger understanding of the routes
- Improve services in Ancaster to provide better local coverage and direct service to Downtown Hamilton
- Review services in Dundas to expand local coverage. Investigate options for transfer connections at McMaster for local services
- Develop bus services to Waterdown and thereby provide internal local services with connections to Aldershot GO Station and Downtown Hamilton
- Service frequency and coverage in lower and upper Stoney Creek urban area should be improved as the development and ridership increase. A bus route to connect lower and upper Stoney Creek should be investigated
- Consideration should be given to modification of cross-town bus routes on Hamilton Mountain (i.e. MOHAWK, FENNELL, LIMERIDGE) to improve integration with Rapid Bus Transit corridors as well as for operating efficiency.

- The feasibility of service to Hamilton Airport and surrounding development should be considered in medium to long term, depending on activity level

5.4.7 PASSENGER TERMINALS

Major passenger terminal facilities are required at McMaster, Eastgate, Limeridge and Downtown Hamilton to ensure passenger convenience, security and accessibility and to increase the visibility of transit. Each terminal has unique requirements but general provisions at all terminals could include the following amenities

- Passenger protection from weather
- Transit information
- Auto drop off / pick up and/or parking.
- Bicycle storage
- Accessibility features
- Public telephones
- Off-board fare collection
- Security call boxes

Minor passenger terminals should be developed at locations with high levels of passenger boarding and/or transfer activity. Likely locations could include Mohawk College, Heritage Green, Ancaster, Waterdown, Bayfront Industrial area. Passenger amenities are also required at these locations and could include some of those identified above

5.4.8 GO TRANSIT INTEGRATION

A high level of integration between Regional Transit services and Hamilton GO Centre is required. Service Integration could be improved by:

- short term development of bus stops on James Street and John Street as close as possible to station.
- possible use of Hunter Street or bus area in Station for specific route changes.
- long range construction of bus bays, directly under the GO Rail platform on James Street and John Street

Fare Integration should be developed in cooperation with GO Transit and M.T.O.. Also, provision of transit information, fare media sales and coordinated transit promotion should be pursued with GO Transit.

5.4.9 TRANSIT ACCESSIBILITY

The travel needs of the elderly and persons with disabilities are expected to increase significantly during planning period. (ref. Study of Transportation Services for Disabled Persons).

The Regional strategy is to develop a range of services to better respond to all customer needs and to maintain efficiency.

The improved services would consist of

- Door-to-door parallel service on a reservation basis (eg DARTS)
- Taxi Scrip service which customers book directly and pay on basis of meter cost
- Community bus service in very high activity areas where improved operating efficiencies can be achieved
- Low floor wheelchair accessible buses operating in conventional public transit services, thus improving accessibility to all users

The delivery of these services should be coordinated by the Region with input from customers

5.4.10 FLEET AND INFRASTRUCTURE REQUIREMENTS

The HSR currently has a fleet of 212 buses to meet peak requirement of 174 buses in scheduled service. Two garages are utilized for vehicle storage and maintenance with fleet storage capacity of about 360 buses. Fleet expansion will be minimal in the short term. In the medium to long term, attainment of the VISION 2020 ridership target would require a fleet of over 400 buses. This may require expansion of existing garage facilities or provision of additional facilities

5.4.11 TRANSIT AND LAND USE INTEGRATION

Redevelopment procedures should require specific pedestrian / transit considerations prior to approval. New subdivision planning should reflect the latest developments in transit / pedestrian sensitive design to improve transit's ability to economically provide good service levels. Zoning and development incentives should be considered along high frequency transit routes and at major transit nodes (terminals) to increase employment and population densities. Parking requirements in the Central Area should capitalize on the availability of high transit service levels. Specific site design for suburban employment and commercial facilities should feature transit accessibility. The urban boundary should be relatively fixed and promote infilling and increased density as opposed to continued, low density suburban sprawl.

5.4.12 TRANSIT GOVERNANCE AND FUNDING

The general level of local funding to public transit for each municipality is presented in Table 5.3

TABLE 5.3

PUBLIC TRANSIT FUNDING

Municipality	Municipal Contribution to Transit Services	Municipal Contribution per Capita for Transit (UTSA)
Hamilton	\$18.0 M	\$58
Stoney Creek	\$1.00 M	\$22
Dundas	\$0.30 M	\$15
Ancaster	\$0.10 M	\$6
Glanbrook	\$0 M	\$0
Flamborough	\$0.05 M	\$3
Total	\$19.45 M	\$48
		Average

All people in urban area of Region benefit from public transit services through reduced air pollution, reduced automobile traffic and general availability of service

The current funding is not equitable across different municipalities in terms of the broader role of transit in supporting the goals of VISION 2020. In addition, the current decision-making structure of public transit is fragmented with the Region and each Area Municipality making relatively independent decisions on level of transit services

The level of transit service in newly developing suburban areas is low or non-existent. This does not encourage a transit commuting pattern to develop at the critical time when people are forming their travel habits. This situation is in part attributable to current decision-making and funding arrangements. Achieving the goals of VISION 2020 will require a more uniform level of municipal funding and coordinated political decision-making for Public Transit

There are a number of options that can be considered to address this situation:

- Expand Urban Transit Area to full Urban Transit Service Area so that Regional Council is responsible for the transit level of service throughout urban area and costs are allocated on basis of property assessment.
- Allocate urban transit costs on the basis of full Regional assessment across all areas of Region.

- Allocate urban transit costs on a combined basis of level of service to each municipality and the property assessment in the Urban Transit Service Area.

Changes in transit governance and funding are necessary to achieve the transportation goals of VISION 2020. The final solution will have to be developed through consultation and negotiation with Area Municipalities. It should include

- Improved level of public transit services in developing areas
- More uniform contribution towards cost of transit from the full urban area
- Single political body responsible for policy direction of Regional transit services
- Phased introduction of changes to cost-sharing consistent with service improvements

5.5 BICYCLES

The Region has developed a Bicycle Network Master Plan which includes a five-year implementation schedule for facility construction and public relations / education programs. Various components of the Bicycle Master Plan have been implemented to date (facilities, bicycle storage, and education programs). The Bicycle Lane Demonstration Project on Main Street and King Street was implemented in May 1993. The project was cancelled in November 1993 due to safety and operational concerns.

There are currently two major network discontinuities in the Bicycle Network:

- a link between Westdale / McMaster Area and the Downtown across Highway 403
- a link crossing the escarpment connecting the Central Mountain to Downtown area

These discontinuities provide impediments and safety concerns for existing cyclists and deterrents for potential cyclists.

The Region has also developed a supporting bikeway program that includes public information centres, consultation with cyclist groups, development of bike rack and storage facilities and improved cycling skills courses.

5.5.1 PROPOSED STRATEGY FOR BICYCLE CORRIDOR BETWEEN MCMASTER AND DOWNTOWN

Establish feeder routes from areas east and west of the Downtown to collector-distributor routes along Locke Street and Ferguson Avenue. Ferguson Avenue is being developed as a pedestrian / bicycle route by the City.

Designate a number of on-street routes leading into the Central Area.

A recent report tabled by Regional staff (based on discussions with the Bicycle Advisory Committee) indicates that there is no single solution to the issue of providing a direct link between McMaster and the Downtown core. Selecting bicycle routes between McMaster University and Locke Street should take into account that cyclists have different cycling skill levels and trip purposes.

Since more experienced commuter cyclists will continue to use Main / King Street West, these streets should be made as bicycle friendly as possible without affecting traffic operations. Less experienced cyclists and recreational cyclists need special facilities. Initially, the bicycle routes would use indirect local streets connected to Main / King Street West. Ultimately, new facilities such as Baxter Street Extension across Highway 403 and grade separations at the Highway 403 east ramp terminals with Main / King Street West should be developed (see Exhibit 5.8).

To assist in the early implementation of the Regional Bicycle Network Plan, any components of the selected alternatives which can be readily implemented as part of other on-going works should be constructed as soon as possible.

Several potential 403 crossing strategies were identified:

- Main Street West / Hunter Street / Canada Street
- Longwood Road / Chatham Street Extension
- Longwood Road / Aberdeen Avenue
- Baxter Street / Aberdeen Avenue

5.5.2 PROPOSED STRATEGY FOR CENTRAL ESCARPMENT BICYCLE CROSSING

The selected route would connect Ferguson Avenue to Sam Lawrence Park via a route that would include some of the following elements:

- stairs located at the south end of Ferguson Avenue up to the Jolley Cut
- new structure parallel to Jolley Cut.
- a section of existing Jolley Cut roadway.
- stairs at south end of the Jolley Cut to Sam Lawrence Park

Two different methods to develop this route were examined, but further investigation is required to finalize a solution. The two methods involved the following:

- reduce the Jolley Cut by one traffic lane and accommodate the bicycles on the existing roadway, or
- construct a separate structure for the bicycles alongside the existing structure

5.6 PEDESTRIAN PLAN

There are a number of objectives for improved pedestrian facilities in the long term. These include

- To increase the modal split to the walk mode as a means of reducing auto trips
- To increase the walk trips in the Central Area to improve general mobility, and increase the on-street activity.
- To make transit more accessible in suburban developments by providing better design and maintenance of pedestrian facilities connecting to transit stops
- To increase the potential number of walk trips in urban developments by providing more live-work, school, shop and recreation opportunities in closer proximity to each other
- To increase the safety of pedestrians

Recommended actions that will enhance the attractiveness of the pedestrian network and mode of travel include

- Promote more integrated land use planning that will make walk trips more practical;
- Adopt Regional / Municipal policies that will provide for continuous sidewalks early in the development of an area and feed pedestrians to bus stops;
- Review and redevelop existing standards of design and maintenance for sidewalks, including winter maintenance;
- Improve amenities such as lighting, benches, other street fixtures along sidewalks to improve safety and convenience;
- Improve safety by requiring buffers between pedestrians and adjacent traffic where possible;
- Adopt suburban design policies in accordance with TAC manual. These policies promote pedestrian connectivity through subdivisions to transit route;
- Develop a Central Area - comprehensive pedestrian plan which includes:
 - Hughson Street pedestrian facility;
 - walkway guides for visitors ;
 - Central Area bus shelters located and designed so they can provide shelter for other pedestrians;
 - The attractiveness of the Downtown Area can be enhanced through continuous high quality pedestrian facilities.

The improvement of the pedestrian environment is totally in harmony with the thrust of the Official Plan and the VISION 2020 process. Benefits from increased pedestrian activity accrue to the Region and local municipalities in a number of areas as described above. Improvements will be incremental but will be visible and welcomed by all citizens, who, for many of their trips, are pedestrians

5.7 PARKING

5.7.1 IMPORTANCE OF PARKING

The availability and cost of all day parking is a major factor in mode choice by commuters and especially those destined for the Central Area. Retail oriented businesses require convenient and economical parking for customers and delivery vehicles to support their operations. The challenge is to encourage more single occupant vehicles to convert to transit rather than have their auto parked all day and contribute to the peak period traffic flows each day. Surplus parking spaces are low priced for all day parking and high priced for short term parking. This rate structure encourages peak hour commuter flows to and from the Central Area. Parking policies can be an effective tool to assist in traffic management and transit promotion.

5.7.2 PARKING ISSUES

There is a surplus of CBD parking spaces

Low all day parking rates (eg. \$2.50 per day) discourage transit use and support auto use

There is widely available free employee parking throughout the Central Area.

High short term parking rates (eg. \$1.25 per half hour) reduces the relative competitiveness of Downtown business compared to those businesses in the suburban areas

The number of small surface parking lots creates traffic-pedestrian conflicts at access points and detracts from aesthetics, personal security, etc. in the Downtown

There is limited opportunity to generate "cash in lieu" funds for long term acquisition of strategic spaces due to current policy.

5.7.3 PARKING POLICY OPTIONS

Two main tools are available to the City of Hamilton to influence parking. They are:

- Hamilton Parking Authority which currently owns and operates about 40% of Downtown Hamilton parking
- Land Use Control By-laws dealing with the conversion of other land uses to parking.

The tools available to the Region are limited to the Regional Official Plan policy statements and the provision and pricing of parking for Regional employees.

The parking policy initiatives of the Region and the City need to be closely coordinated to achieve the results desired while protecting the economic viability of the Central Area

5.7.4 STRATEGIES

Use parking controls as a lever to encourage transit ridership and discourage the single occupant vehicles from driving to the Central Area and parking all day

Allow increases in the supply of parking only as new development requires it.

Decrease the parking supply in the Central Area for long term parking use.

Make short term parking facilities and rates attractive to shoppers and business people

Increase the cost of all day parking for commuters who park in the Central Area

Develop a program to discourage any increase in the number of parking lots in the Central Area.

5.7.5 PARKING POLICY AND ACTIONS

Constrain growth of all day parking supply by vigorous action to encourage transit, and by specific policy action (of the City and Region), to discontinue the provision of free staff and management parking spaces. *Lead by Example*

Review "cash-in-lieu" exemption policy to enable Parking Authority to raise funds required for strategic parking facilities

Allocate Central Area street space to favour transit and moving people and goods as opposed to parking vehicles during peak traffic periods

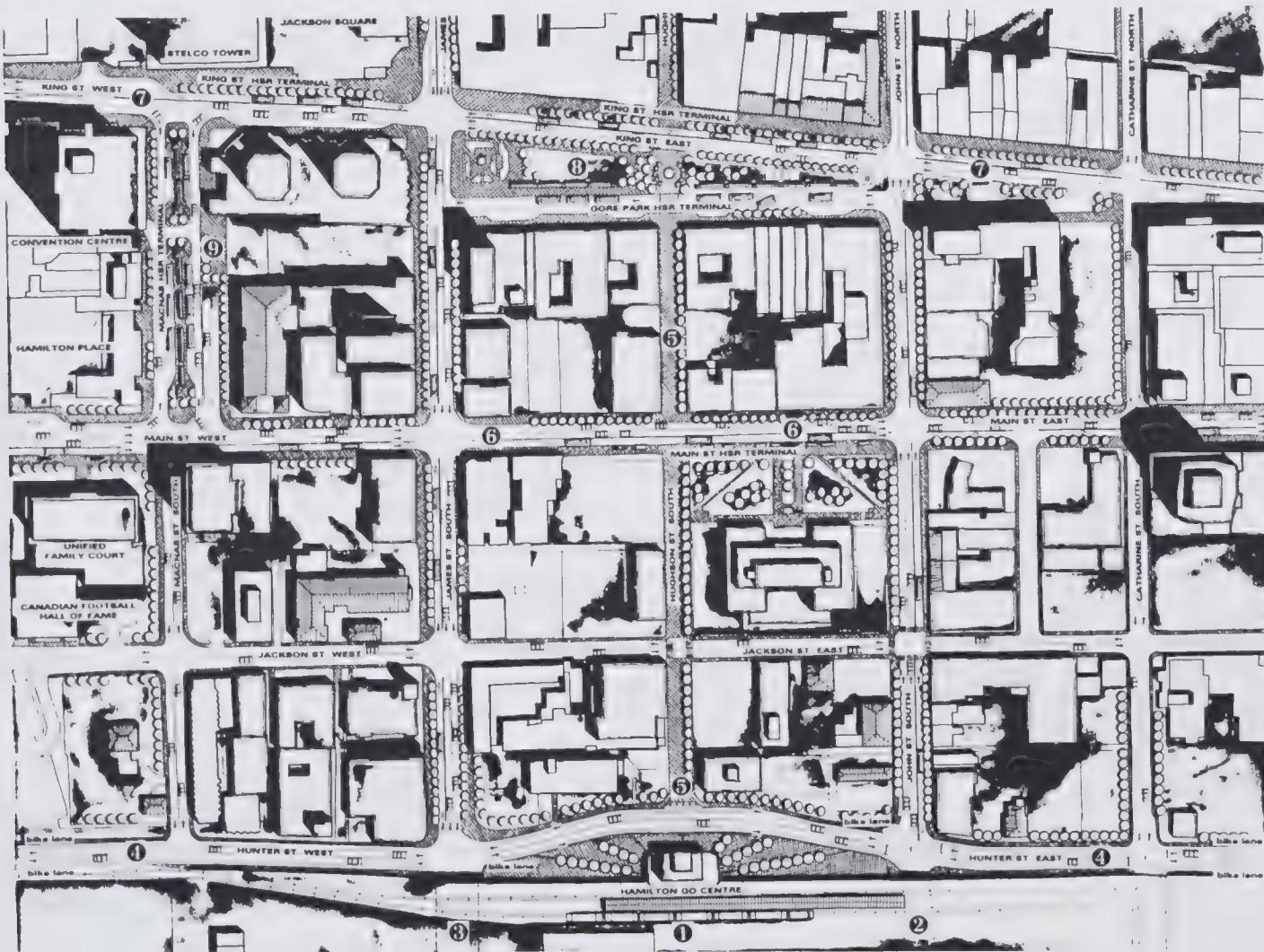
Promote a high quality of parking lot design and construction

Develop and facilitate employer parking management programs in suburban areas to promote transit and reduce SOV use for all day parking

Promote increased employment and population densities along major transit corridors and at major transit terminals. This will encourage transit use and walking, while at the same time reduce the need for parking

5.8 DOWNTOWN HAMILTON TRANSPORTATION CONCEPT

A major focus of the transportation plan is to enhance the attractiveness of the Downtown area and to reinforce its role as the Regional centre. This involves an integrated program of roadway changes, transit service changes, bikeways, pedestrians, and so forth. The specific aspects of these changes have been identified previously. The following exhibits (5.9 to 5.13) illustrate the general concept of how different transportation modes can be effectively integrated in Downtown Hamilton. At this stage this is a concept only; the specific aspects will require more detailed design prior to implementation



LEGEND

- 1 HAMILTON GO CENTRE
INTER-CITY AND INTERREGIONAL TRANSPORTATION TERMINAL
- 2 HSR / GO
DIRECT CONNECTION ON JOHN ST. SOUTH
- 3 HSR / GO
DIRECT CONNECTION ON JAMES ST. SOUTH
- 4 HUNTER STREET
DOWNTOWN
- 5 HUGHSON STREET
PEDESTRIAN ORIENTED CORRIDOR ALONG HUGHSON ST. CONNECTING GO TO THE DOWNTOWN ACTIVITY AREA
- 6 MAIN STREET
REDUCED TRAFFIC LANES AND VOLUMES
- 7 KING STREET
REDUCED TRAFFIC LANES AND VOLUMES
- 8 GORE PARK
MAJOR RAIL-PASSenger TERMINAL AT GORE PARK, INTEGRATED WITH OTHER ENHANCEMENTS
- 9 MACNAUL STREET
MAJOR PASSENGER TERMINAL, INTEGRATED PEDESTRIAN CIRCULATION AND PEDESTRIAN AMENITIES

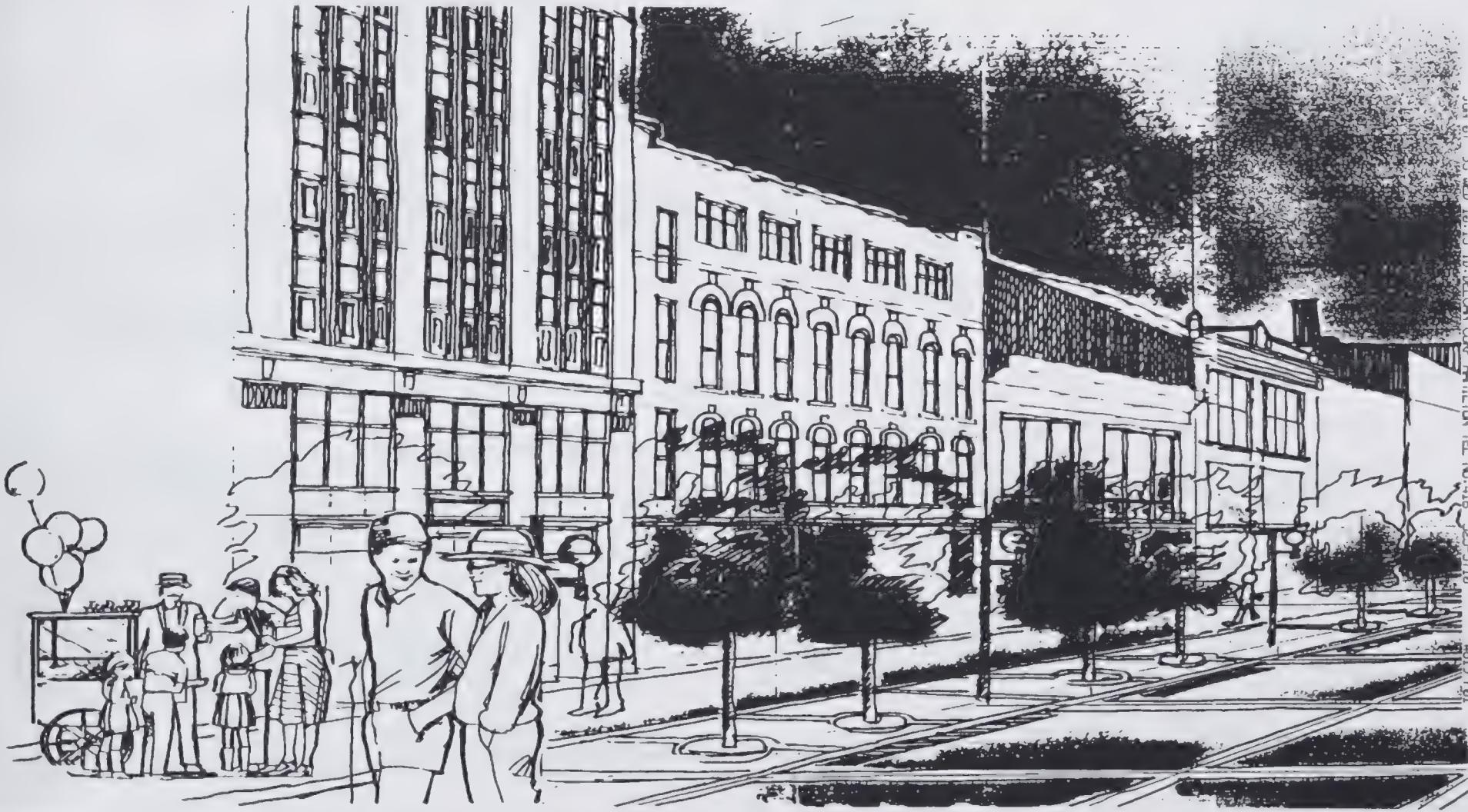
 BRT (BUS RAPID TRANSIT) (BUSES LANE)

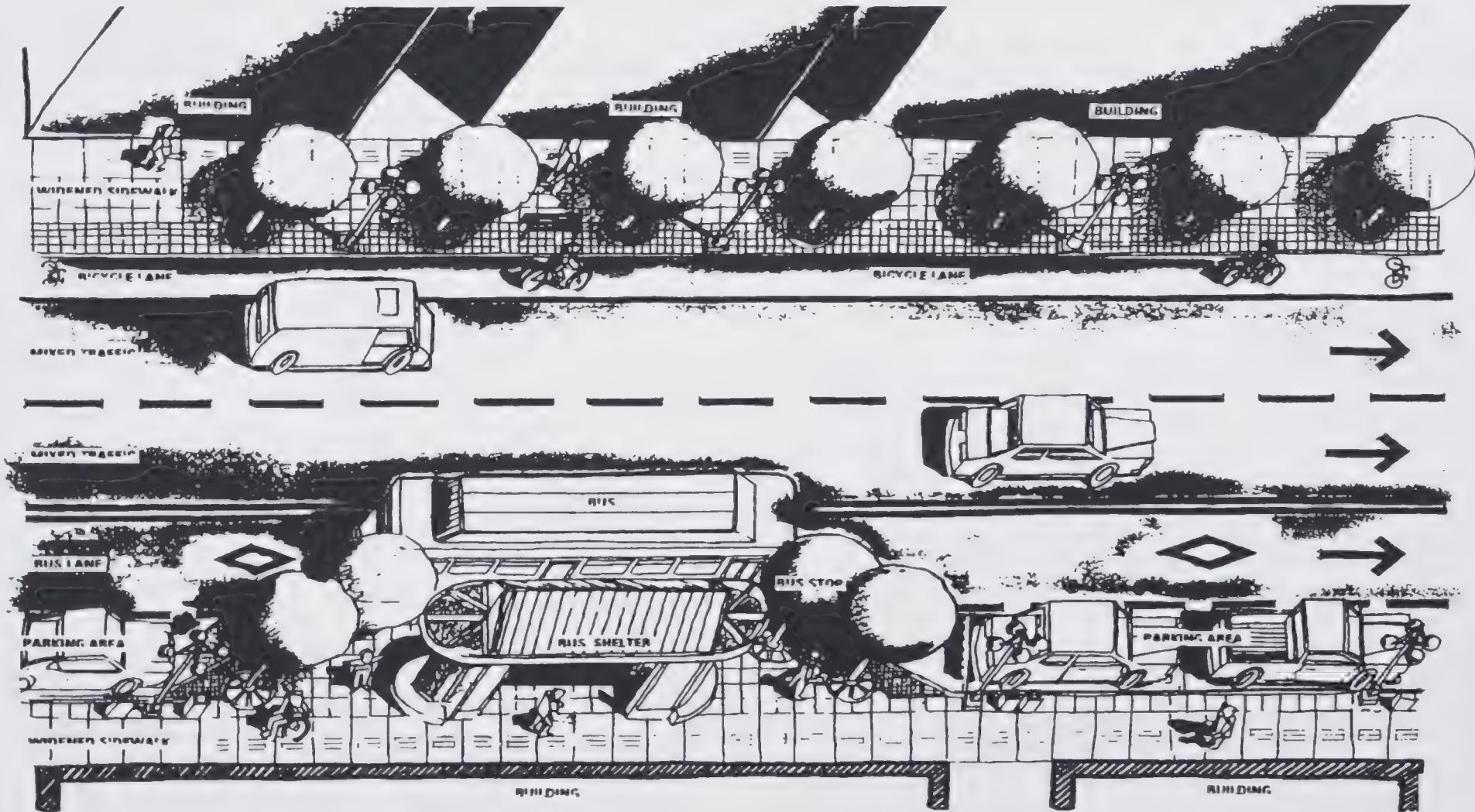
 PEDESTRIAN PRIORITY AREAS

 TRAFFIC DIRECTION (MIXED TRAFFIC)









6 IMPLICATIONS OF THE TRANSPORTATION PLAN

6.1 LEVEL OF SERVICE

The overall transportation network performance summary for A.M. peak with the proposed plan would be as shown in Table 6.1

TABLE 6.1
TRANSPORTATION NETWORK PERFORMANCE

	1991	2001	2021
Auto Trips	61,700	72,300	78,700
Transit Trips	7,200	8,000	16,000
Average Trip Time by Auto (minutes)	13.0	13.7	15.1
Average Auto Travel Speed (kph)	63	61	58
% Trips by Transit	11%	11%	20%

The proposed roadway improvements will address need for additional capacity at major geographic barriers. Some areas of continuing localized congestion can be expected at the following areas:

- York Blvd. at Dundurn Street
- Main / King Streets at Dundurn Street.
- Improved circumferential roadways will generally reduce inner area roadway congestion
- Improved frequency and coverage of transit service will be provided in the outer urban areas. Express services in major corridors will enable most outer areas to travel to Downtown Hamilton in less than 40 minutes

- Substantial development of a bikeway system will encourage much greater use of bicycles for work as well as for recreational trips
- Opportunities for pedestrian improvements will enhance pedestrian mobility in Downtown area. The general public environment will be improved in the Downtown

6.2 FINANCIAL

The capital and operating costs associated with the recommended plan are as follows

6.2.1 ROADWAYS

The estimated cost of the recommended roadway plan is as follows

- The total capital investment over a 27 year period (1994-2021) is \$850 million in today's dollars. This includes
 - East-West Expressway as currently designed
 - North-South Expressway - Alternative C2 (\$110 M)
 - Hamilton Perimeter Road (Victoria Street to Bay Street- \$50M)
 - a full Regional Bicycle Network
 - upgrading the arterial network to urban standards in development areas
 - Central Area and escarpment crossing roadway and operational improvements

In addition to capital costs, the ongoing annual operating and maintenance costs are estimated to be in the order of \$16 million to \$18 million.

6.2.2 TRANSIT

The estimated cost of the recommended transit plan is as follows:

- The projected capital investment over a 27 year period (1994-2021) is \$270 million. This includes on-going capital investment in:
 - fleet renewal and replacement
 - fleet expansion
 - support infrastructure

The estimated increase in operating and maintenance costs over the next 27 years is partially offset by the estimated increases in passenger revenues. The result is a net increase of 25% to 30% in Regional share of the operating and maintenance costs for transit.

Overall, the net Regional transit costs (capital and operating) will increase from \$20 million in 1994 to \$28 million in 2021. This represents an increase in the per capita costs from \$48 in 1994 to \$52 in 2021 in the urban transit area

6.2.3 OTHER COSTS

Bicycle program costs are estimated to include an annual \$300,000 for implementing the Regional Bicycle Master Plan and a capital investment of about \$5 million to overcome the physical barriers at Highway 403 and the Central Escarpment. Five million dollars over 5 years has been estimated for Central Area Improvements. This includes lane narrowings, wider sidewalks, street furniture and other pedestrian facilities

Accessible transit costs are currently (1994) \$7 million and are anticipated to grow to over \$10 million in the short to mid term

6.2.4 SUMMARY OF FINANCIAL IMPLICATIONS

Overall, the recommended plan will result in the costs of Regional transportation facilities and services increasing from about \$85 million annually at present to an average annual expenditure of about \$100 to \$105 million, an increase of over 20%. Over the 25 year planning period, Regional population is expected to increase by 20% to 25%. On a per capita basis, total spending would increase by up to 10% to 15%

The actual cost to the Regional taxpayers, however, will depend on continued Provincial financial support. Currently, the Province contributes about 50% of total transportation costs. If this is reduced, Regional costs will further increase. The main financial implications may be summarized as follows:

- The recommended plan is generally within the Region's financial capability if it continues to receive a reasonable level of Provincial subsidies
- The Region will experience fairly significant ongoing debt charges due to the current and proposed roadway capital projects
- Significant enhancements to the public transit system will cost more than what is being spent today. The local levy will have to increase
- The recommended plan and financial assessment only includes the initial stage of the Hamilton Perimeter Road. Further stages within the 25 year period would increase cost significantly

6.3 OTHER IMPLICATIONS

6.3.1 SUSTAINABILITY

The recommended Transportation Plan will substantially contribute towards the general community and environmental objectives of VISION 2020 by

- Reduction of single occupant vehicles
- Promotion of energy conservation
- Removal of through traffic from neighbourhoods
- Reduced need for auto use
- Promotion of non-motorized transportation alternatives, i.e. bicycle, walk
- Promotion of a contained urban area
- Promotion of increased density and reduced land consumption through higher corridor transit service levels and nodal development
- Enhancement of the Downtown Area

Sustainable transportation must address the following four components

Financially affordable: The plan has long term capital debt as a result of the staging of major projects. The maintenance of the infrastructure and the ongoing operations costs are within the Regions means

Realistic goals for non-auto modes: The facility and service changes are focused on encouraging alternatives modes of transport while discouraging the single occupant vehicle. However, even with the aggressive alternative modes program auto use will still increase from existing levels.

Support and enhance land use plans: This is achieved through the Transportation Plan's recommended use of traffic calming measures in neighbourhoods and Downtown areas experiencing traffic infiltration. It is supplemented by the strong focus on utilizing well defined, high standard corridors for through and truck travel. The concept of programming new facilities and services as new development occurs and supporting redevelopment with attractive transportation services also contributes to the sustainability

Community support: With the recent VISION 2020 study the public has expressed their desire to change the current direction of their community, with transportation being one element. If the Transportation plan is to be effective, the community must see and understand the reasons for the changes outlined in the plan. As part of the consultation process a partnership was established between the transportation study team and the community / businesses through the establishment of a focus group. This group was used as a sounding board at several different stages in the development of the Transportation Plan. Finally, the implementation of the Transportation Plan must be staged and sensitive to the public's concerns.

7 IMPLEMENTATION PLAN

7.1 GENERAL CONSIDERATIONS

There is a pressing need to start making changes now to influence future travel behaviour. The initial changes should be well planned and gradual to avoid public reaction

The greatest urgency in the short term is to make changes that will

- Reduce traffic and improve transit services in and to the Downtown to enhance economic development potential
- Increase transit service in newly developing areas to capture riders and reduce auto dependency

Institutional issues related to transit governance and funding, and Regional roadway jurisdiction should be addressed in the short term.

There is a need to schedule major capital expenditures to minimize financial impact of multiple projects.

It is important to stage growth related expenditures in harmony with growth requirements and the development funds to finance them.

There is a need to overcome the missing links in the bicycle network between McMaster University and the Central Area

There is justification in an investment policy that will, in general, lead transit demand with expenditures, and lag demand with roadway expenditures in order to enhance transit attractiveness

There is a need to ensure that adequate sidewalks are provided in high volume areas and at all transit stops and that they are continuous

There is a need to stage facility provision where possible and minimize throw away costs

There should be an ongoing effort to involve the community and business leaders in the development and implementation of the plan.

7.2 THE ACTION PLAN

The Implementation stages generally correspond to

- Short Term (to year 2001)
- Mid-Term (year 2001 to year 2011)
- Long Term (year 2011 to year 2021)

The recommended staging and implementation of the Transportation Plan is based on the following

1. **Transit Service:** Concentrate first upon establishment of three major transit terminals along the Main / King corridor and one major terminal at Limeridge Mall. This would be done in conjunction with transit priority measures and service integration with GO Transit
 - Early road changes that will facilitate major transit improvements are McMaster access and transit on James Mountain Road. These should be pursued in short term
 - Investigate and implement Central Area transit priority at specific critical locations in short term
 - East - West corridor in the short term
 - Mountain services in the short to medium term.
2. **Regional Roads:** The major component of the Road program is the Truck Route Loop. To ensure that the capital debt of this component does not exceed the Region's financial limits, the program should be phased by completing the east - west portion of the Red Hill Creek Expressway, then the north - south portion and finally the first phase of the Hamilton Perimeter Road. Interim operational changes to the Central Escarpment crossings and the Central Area roadways should be implemented to provide transit priority. The full implementation of reduced roadways in the Central Area is dependent on completion of the initial stage of the Hamilton Perimeter Road
 - 3. **Bicycle Network**
 - Should continue current annual program for network development.
 - Short term should finalize plans for Locke Street and Hunter Street

- More detailed analyses of Escarpment crossing
- Significant lane reductions on Jolley Cut probably should not proceed until the North - South Freeway is constructed
- Investigate measures to accommodate bicycles on the transit service

4. **Downtown Parking Initiatives:** Concentrates on providing the Hamilton Parking Authority with a new mandate, focused on influencing parking prices ("higher prices for long term parking and the lower for short term parking"). This is complimented by a review of the areas of parking exemption and a first step "lead by example" by the City and Region to eliminate all non-essential employee parking

Immediate

1. Undertake program for Regional and City Employees

Short Term

1. Initiate a review of land use control policies to achieve objectives
2. Review and change mandate of Hamilton-Wentworth Parking Authority

The detailed implementation plan for the three horizons is outlined in the following tables

SHORT-TERM 1995-2001		
ROADS PROJECTS		
Stone Church Road Extension Stone Church Road Extension Dartnall Road	Omni Blvd. Intersection to Meadowlands Street Meadowlands Street to RHCE / Mohawk Road Interchange RHCE to Stone Church Road	New 2 lanes — urban New 4 lanes — urban Widen to 4 lanes
Stone Church Road Rymal Road	Garth Street to Dartnall Road Wellington Street to Pritchard Road	Widen 2 to 3 lanes — urban
Rymal Road Upper Wentworth Street Upper Gage Street	West 5th Street to Wellington Street RHCE to Rymal Road RHCE to Rymal Road	Widen 2 to 4 lanes — urban
Upper James Street	RHCE to City Limits (south)	Widen 4 to 5 lanes — urban
Upper James Street	Inverness Avenue to Fennell Avenue	Widen 4 to 5 lanes — urban
Highway 8 (after transfer)	Millen Road to Jones Road	Widen 2 to 5 lanes — urban
Mohawk Road Wilson Street Stone Church Road	McNiven Road to Wilson Street Rousseaux Street to Fiddler's Green Road Upper Paradise Road to Garth Street	Widen 2 to 3 lanes — urban
Red Hill Creek Expressway	Complete East - West portion; Start North - South portion	New 4 lanes
Stage 1 - Perimeter Road	Finalize plans	New 4 lanes to Bay Street
Hunter Street	Bay Street to Ferguson Avenue	Convert to two-way operation
James Street / John Street	Hunter Street to York Street	Initial transit priority / Urban design improvements
King Street / Main Street	Bay Street to Ferguson Avenue	Initial transit priority / Urban design improvements
Undertake rationalization of the Regional road system in consultation with Area Municipalities and the M.T.O		
Finalize upgrading plan for Fifty Road		
TRANSIT CHANGES		
Develop major passenger terminals at Eastgate Mall, McMaster Limeridge Mall and improve Central Area terminals		
Upgrade transit passenger information systems at terminals		
Initiate transit priority measures at critical locations and bottle-necks.		

SHORT-TERM 1995-2001

Provide pedestrian connections at GO Terminal

Finalize and implement an all-direction access from McMaster University to Main Street.

Start route and service restructuring on priority Rapid Bus Corridors (King - Delaware - Beeline corridor)

Negotiate and implement a new cost allocation formula for Regional transit funding in consultation with Area Municipalities

Review related roadway improvement measures to facilitate bus movements;

- Operations on express route connecting Limeridge to the Jolley Cut
- Transit queue by-pass at Concession Street and Upper Wellington Street
- Jolley Cut transit priority in peak periods
- Curb lane on John Street / James Street from St. Joseph's Drive to Central Area as permanent bus lanes

Initiate Regional "Transit First" investment priority policy to favour transit investments to alleviate congestion over roadway expenditures

Deploy low floor vehicles as they become available and coordinate these with DARTS services to improve transit service for disabled persons

Formalize Transit input to development approval process

PARKING INITIATIVES

Implement policy to discourage long term parking in Central Area

i.e. Region / City remove full parking provision for management / staff / political Lead by example

Provide the Hamilton Parking Authority with a new mandate which would instruct them to influence market prices (higher prices for long-term parking and lower for short-term)

Continue policy to improve safety and appearance of off-street lots.

Reconsider the areas of parking exemption with respect to the cash in lieu policy and the amount of the exemption.

Promote employer parking management programs throughout Region

BICYCLE INITIATIVES

Continue implementation of the Region's bicycle commuter network.

Develop a series of bicycle routes from McMaster to the Central Area for utilitarian and recreational cyclists Components of the Regional Bicycle Program that can be readily implemented through on-going works, should be constructed as soon as possible.

A contra-flow bicycle lane should be developed on Locke Street between Main Street and King Street This would provide for continuity of the network

Detailed design and operational improvements should be developed for the Jolley Cut Corridor as a Central Escarpment bicycle route

SHORT-TERM 1995-2001

PEDESTRIAN INITIATIVES

Develop and implement a comprehensive pedestrian plan for the Central Area including

- Hughson Street pedestrian mall development
- Walkway guides for pedestrians
- Locate and design bus shelters so that they can provide shelter for other pedestrian
- Develop buffers between pedestrians and adjacent traffic (eg. on-street parking)

Modify the current policy for the provision of sidewalks to incorporate a mechanism that would provide sidewalks in all areas including municipally owned land as the roadways are improved

Conduct a review of pedestrian routes and transit stop locations and establish a program to ensure that adequate sidewalks are provided to all bus stops

MID -TERM 2002-2011		
ROAD PROJECTS		
Garth Street Upper Ottawa Street Rymal Road	Stone Church Road to Rymal Road RHCE to Rymal Road Glancaster Road to West 5th Street	Widen 2 to 4 lanes - urban
Upper Sherman Avenue	RHCE to Rymal Road	Widen 2 to 3 lanes - urban
Meadowland Collector Road	Stone Church Road Extension to Southcote Road	New 2 lanes - urban
Glancaster Road	Rymal Road to Stone Church Road	New 2 lanes - urban
Fruitland Road Parkside Drive Hamilton Street	Barton Street to Highway 8 Highway 6 to Evans Road Highway 5 to Waterdown By-Pass	Widen 2 to 4 lanes - urban
Red Hill Creek Expressway	Complete North - South link to QEW	
Perimeter Road - Construct Initial Stage to Bay Street	Victoria Avenue / Wellington Street to Bay Street	New 4 lanes to Bay Street plus upgrading of Bay Street
TRANSIT SERVICES		
Progressive restructuring of the transit routes		
Bus Service extensions to minor terminals at Waterdown, Ancaster, Heritage Green		
Continue the implementation of transit priority measures.		
Initiate feeder services to major and minor terminals		
Continue upgrading and integrating DARTS services with regular services		
If necessary, revise and strengthen transit involvement in land / facility development approval process		
PARKING INITIATIVES		
Continue to support parking authority in acquisition of new strategic lots and in management of supply and influence of long-term parking rates		
Continue to advocate and support employer parking management programs		
Improve / support pedestrian design upgrades to link parking to activity areas safely and attractively		

MID -TERM 2002-2011

BICYCLE PROGRAM

Continue Network expansion

Look at potential for grade separation at Highway 403

Implement Jolley Cut Alternative

PEDESTRIAN INITIATIVES

Continue enhancement of pedestrian environment in Central Area

Continue expansion of walkway / sidewalk networks

LONG -TERM 2012-2021		
ROAD PROJECTS		
Mountain Brow Road Extension	Mountain Brow to Highway 5	New 2 lanes - urban
Glancaster Road Fruitland Road	Rymal Road to Stone Church Road Highway 8 to Escarpment	New 2 lanes
Upper Paradise Road West 5th Street Upper Wellington Street	Mohawk Road to Rymal Road Stone Church Road to Rymal Road Limeridge Road to Rymal Road	Widen 2 to 3 lanes - urban
Southcote Road McNiven Road Mohawk Road Rymal Road	Golflinks Road to Rymal Road (Highway 53) Golflinks Road to Mohawk Road Southcote Road to Highway 403 Glancaster Road to Fiddler's Green Road	Widen 2 to 4 lanes - urban
Development Related Roadways	South Mountain and Flamborough	Widenings and new links
TRANSIT SERVICES		
Improve transit levels of service on Bus Rapid Transit corridors and on major routes		
Construct bus bays at the GO Terminal coincident with the structure replacement on James Street and John Street.		
Expanded maintenance and storage facilities may be required in the long term based on fleet size		
Phase in non-bus capital improvements with passenger growth.		
Strengthen and expand the feeder services in the implementation of the full network concept		
Initiate off-vehicle fare collection to take advantage of modern fare collection technology		
PARKING INITIATIVES		
Continue to support parking authority in acquisition of new strategic lots and in management of supply and influence of long-term parking rates		
Continue to advocate and support employer parking management programs		
Improve / support pedestrian design upgrades to link parking to activity areas safely and attractively		

LONG -TERM 2012-2021

BICYCLE INITIATIVES

Continue Regional Bikeway Program as required.

Finalize grade separation plan at Highway 403

PEDESTRIAN INITIATIVES

Continue enhancement of pedestrian environment in Central Area

Continue expansion of walkway / sidewalk networks

7.3 PERFORMANCE INDICATORS

A limited number of basic indicators of system performance should be utilized. These indicators should be based on data currently available as far as possible.

Performance Indicators	Targets		
	1991	2011	2021
Annual Transit Trips per Capita (for UTSA)	50	75	100
Peak Hour Traffic Volume/Capacity			
Screenline 8 (Woodward)	0.70	0.70	0.70
Screenline 11 (Dundurn)	0.90	0.90	0.80
Screenline 10 (Escarpment)	0.75	0.75	0.80
Peak Hour Transit Modal Share			
Screenline 8 (Woodward)	10%	12-15%	20%
Screenline 11 (Dundurn)	10%	12-15%	20%
Screenline 10 (Escarpment)	13%	18-20%	25%
Peak Hour Share of Travel by Walking and Cycling Modes	10%	15%	20%
Daily Bike Volumes on Major Bicycle Corridors	Record daily volumes at least once a year.		

7.4 REPORTING AND PLAN REVIEW

An annual performance report on travel characteristics and trends should be prepared in a summary form.

The ~~plan implementation~~ status should be reviewed every three to five years, with an update of plan at least every 5 years.

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